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The Law of

# Climate Change Mitigation

in New Zealand

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A thesis submitted in fulfilment of the requirements for the  
degree of Masters of Laws at the University of Canterbury by

Simon Anthony Schofield

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## Preface

In New Zealand, reducing greenhouse gas emissions to mitigate anthropogenic climate change has been pushed onto the legal and policy agenda in recent years. Such activities form the dominant part of the broader legal discipline of climate change law. This body of law involves international, national, regional and local governance and is more than just environmental law. It traverses the legal realms of banking, commercial, company, competition, conflict of laws, contract, criminal, emergency, employment, energy, human rights, immigration, indigenous rights, insurance, intellectual property, international environmental, judicial review, medical, property, resource management, securities, tax, and tort. Given that climate change law is so vast, this thesis is unapologetically ambitious. The nature of this legal area also means that this thesis will be outdated as soon as printed although the principles analysed will hopefully remain enduring. It is based loosely on a book written by Al Gore entitled *Our Choice: A Plan to Solve the Climate Crisis*, the sequel to his famous book (and documentary) *An Inconvenient Truth: The Crisis of Global Warming*.<sup>1</sup> For editorial purposes, this thesis adopts the *New Zealand Law Style Guide* (2<sup>nd</sup> ed).<sup>2</sup>

This thesis is indebted to countless individuals from the University of Canterbury. First and foremost, Professor Elizabeth Toomey must be thanked. She is true upholder of that fundamental principle, academic freedom, which is enshrined in the Education Act 1989.<sup>3</sup> My subsidiary supervisors, Cynthia Hawes, John Hopkins, Philip Joseph, Adrian Sawyer, Karen Scott, Richard Scragg, Lynne Taylor and Stephen Todd are to be commended for their lucid guidance and diligent support. They remind me of my first exposure to the issue of climate change in my last year of secondary school when I gave a speech on climate change in French. Explaining climate change in English is quite a difficult task in itself.

This thesis had an unsettling start. On the 22 February 2011 at 12.51pm, I was on the fifth floor of the law building attending a postgraduate law luncheon when the powerful force of nature intervened. With legal academics huddled under tables, my induction to postgraduate law will be remembered. Despite frequent aftershocks and the closure of the law building, this thesis and I have survived. In this respect, I am grateful to the history masters students for the use of a desk which I commandeered and my flatmates who have accommodated me while working from home. My friends as well as proof readers Thomas Harré and Sarah McDowell have been invaluable. Although I have never met those legal academics working in climate change law, any writer is always beholden to his predecessors. The work of Alastair Cameron, Vernon Rive (New Zealand), Nicola Durrant, Rosemary Lyster (Australia), Dennis Mahony (Canada) and Michael Gerrard (United States) must be acknowledged as providing structure and ample fodder for critical legal analysis.

I also wish to thank my mother, father, sister and brother who all challenge my ideas.

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<sup>1</sup> Al Gore *Our Choice: A Plan to Solve the Climate Crisis* (Bloomsbury, London, 2009); Al Gore *An Inconvenient Truth: The Planetary Emergency of Global Warming and What We Can Do About It* (Bloomsbury, London, 2006).

<sup>2</sup> Geoff McLay, Christopher Murray and Jonathan Orpin *New Zealand Law Style Guide* (2<sup>nd</sup> ed, Thompson Reuters, Wellington, 2011); This thesis, respectfully, adopts the commercial style for subsequent references to a cited source. Cases and statutes are always cited in full but all secondary sources use the “above n x” format.

<sup>3</sup> Education Act 1989, s 161.

## Abstract

*As the world strives to reduce greenhouse gas emissions to mitigate climate change, the law has a crucial role to play in supporting mitigation solutions. Starting with the common law's potential for the development of a climate change tort in New Zealand, this thesis analyses the applicability of New Zealand's environmental land use planning law before turning to how an New Zealand emissions unit under the Climate Change Response Act 2002 will work in theory and practice to reduce greenhouse gas emissions. This thesis argues that the operation of corporations to drive these reductions as well as the development of renewable electricity from water, geothermal, wind and marine resources will require an integrated approach to sustainability. It explains that the transition from fossil fuels which can be owned to fugacious renewable resources which are incapable of ownership until capture requires reconsideration of the nature of property. Energy efficiency and conservation in addition to sequestration which reduce greenhouse gas emissions expose opportunities and problems associated with disaggregating property law rights. It concludes that New Zealand law must keep sight of the purpose of reducing greenhouse gas emissions through all levels of society, namely, climate change mitigation.*

## Table of Abbreviations

AAUs: Assigned Amount Units  
AGS: Afforestation Grant Scheme  
CCRA 2002: Climate Change Response Act 2002  
CCS: Carbon Capture and Storage  
CERs: Certified Emissions Reductions  
CFAA 1989: Crown Forests Assets Act 1989  
CMA 1991: Crown Minerals Act 1991  
CO<sub>2</sub>-e: Carbon Dioxide Equivalent  
COP: Conference of the Parties  
CSC: Community Services Card  
dB: decibels  
ECFP: East Coast Forestry Project  
ECNZ: Electricity Corporation of New Zealand  
EECA 2000: Energy Efficiency and Conservation Act 2000  
EECA: Energy Efficiency and Conservation Authority  
EITE: Emissions Intensive Trade Exposed  
EPA: Environmental Protection Authority  
ERUs: Emission Reduction Units  
FA 1949: Forests Act 1949  
FSA 2004: Foreshore and Seabed Act 2004  
GEL: Geotherm Energy Limited  
GDP: Gross Domestic Product  
GST Act 1985: Goods and Services Tax Act 1985  
HAN: Home Area Network  
HCEP: Sustainable Land Management (Hill Country Erosion) Programme  
IHD: In Home Display  
IPCC: Intergovernmental Panel on Climate Change  
ITA 2007: Income Tax Act 2007  
Kyoto Protocol 1998: Kyoto Protocol 1998 to the UNFCCC  
LULUCF: Land Use, Land Use Change and Forestry  
MCAA 2011: Marine and Coastal Area (Takutai Moana) Act 2011  
MGL: Mercury Geotherm Limited  
NZBORA 1990: New Zealand Bill of Rights Act 1990  
NPSREG 2011: National Policy Statement for Renewable Energy Generation 2011  
NZU: New Zealand Unit  
PCE: Parliamentary Commissioner for the Environment  
PFSI: Permanent Forest Sink Initiative  
PLL: Poihipi Land Limited  
PPSA 1999: Personal Property Securities Act 1999  
QEII: Queen Elizabeth II National Trust  
RMA 1991: Resource Management Act 1991  
RMUs: Removal Units  
RR: Relative Risk  
SA 1978: Securities Act 1978  
SACs: Special Audible Characteristics  
SMA 1988: Securities Markets Act 1988  
UNFCCC: United Nations Framework Convention on Climate Change 1992

[Developed countries and economies in transition] shall adopt national policies and take corresponding measures on the mitigation of climate change, by limiting its anthropogenic emissions of greenhouse gases and protecting and enhancing its greenhouse gas sinks and reservoirs.

Article 4.2(a) United Nations Framework Convention on Climate Change 1992<sup>1</sup>

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<sup>1</sup> United Nations Framework Convention on Climate Change 1771 UNTS 107 (opened for signature 9 May 1992, entered into force 21 March 1994) [UNFCCC], art 4.2(a).



# Chapter 1

## Introduction

The emission of anthropogenic greenhouse gases is an uncontrolled atmospheric experiment of global proportions. The result is anthropogenic climate change where scientists predict that the increase in anthropogenic greenhouse gases (carbon dioxide, methane, nitrous oxide as well as other complex gases) will have a global warming effect and the resulting extreme weather events will be devastating. An increase in droughts, heat waves, cyclones, hurricanes, tornadoes, typhoons and floods will threaten human prosperity. Combined with rising sea levels, melting permafrost, acidification of the oceans, coral bleaching, tropical diseases in temperate zones, wildfires, extinction of vulnerable species and reduced glacial melt for rivers, the costs of anthropogenic climate change cannot be ignored. Any reduction in the human emissions of greenhouse gases will correspondingly reduce the severity that anthropogenic climate change will have on the planet.

Today, humans emit greenhouse gases from coal and gas in electricity production, petrol and diesel in vehicles, fertiliser use and ruminant animals in agriculture, waste decomposing in landfills as well as industrial activities such as concrete production. The natural reaction to increases in greenhouse gases is a matching increase in greenhouse gas sequestration by carbon sinks through the biological process of photosynthesis such as tree growth. However swelling population growth requiring urbanisation and the industrialisation of agriculture has historically deforested those sinks and drained wetlands releasing further greenhouse gases into the atmosphere. The most potent legal evidence in New Zealand to this unsustainable use of resources to meet human needs is found in the exclusion of minerals from the concept of sustainable management in the Resource Management Act 1991 (RMA 1991) to be controlled instead by the commercial Crown Minerals Act 1991 (CMA 1991).<sup>1</sup>

This thesis, therefore, is a critical reappraisal of how legal mechanisms in New Zealand can and will reduce greenhouse gases produced from human activities. It is decidedly pragmatic and can be broken into three subsidiary aims. The dominant objective is to provide an analysis of New Zealand law which mitigates greenhouse gas emissions. A second objective is to compare and contrast New Zealand's legal framework for mitigating greenhouse gas emissions with the United Kingdom, Australia, Canada, and the United States where space allows. Finally, proposals for legislative reform are submitted where New Zealand law could change to mitigate further greenhouse gas emissions. Although climate change is a global problem and said to require a global solution, this thesis presents a complementary path where individuals make guided choices in mitigating climate change.

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<sup>1</sup> Resource Management Act 1991 [RMA 1991], s 5(1); Crown Minerals Act 1991 [CMA 1991], s 12.

The first chapter introduces how the common law could be used to reduce greenhouse gas emissions. The law of torts with causes of action such as private nuisance, public nuisance, negligence, and product liability seems applicable. The law of torts falls short in this respect as the complex link between greenhouse gas emissions and climate change is too attenuated for any remedy. The United States has been the only jurisdiction to test the common law's application to climate change. It has denied injunctions and is not likely to favour damages. This chapter argues that in theory a climate change tort is not unworkable. Climate change is an unreasonable interference with public rights. The reasonableness of the defendant's conduct and foreseeability of harm provide high legal hurdles. In the law of negligence with individualised harm, the statement that a duty of care is not owed to the whole world is a shortcut to the proposition that the legislature is better able to remedy harm.

If greenhouse gases emissions are treated analogous to an air discharge, the second chapter evaluates why the RMA 1991 and the CMA 1991 do not provide a remedy in New Zealand unlike other common law jurisdictions. A gap has emerged in New Zealand law where indirect greenhouse gas emissions can be considered in environmental land use planning. For instance, such emissions in mining are not in truth produced with the mining activity itself but as a result of the combustion of the minerals that the mining activity sources. Yet mining relies in New Zealand on outdated existing mining privileges which do not even have adequate RMA 1991 oversight. Current permits under the RMA 1991 can be interpreted to require sustainable management of the atmosphere but the legislature may have usurped such an objective. Urban planning, by contrast, can enable greenhouse gas reductions through high density development which deters inefficient travel. The power of local government to creatively reduce emissions in other instances should not be underestimated.

The third chapter introduces the international framework for emissions trading and New Zealand's interpretation in the Climate Change Response Act 2002. Emissions trading is the principal method for mitigating climate change through the reduction of greenhouse gas emissions. This chapter adopts a theoretical and practical approach to analyze the nature of that "thing" being traded, the emissions unit, before turning to how that emissions unit will function in practice. The objective of limiting emissions involves putting a price on emissions units. Beyond the politics of requiring reporting and which participants have obligations, the legal nature of the emissions unit itself indicates that an emissions unit can never create a right to emit but allow its holder to emit and an emissions unit cannot be owned but only held. It is seen that an emissions unit is personal property rather than an interest in land. Although a financial instrument, the term service as an avoidance of emissions better encapsulates its spirit. An emissions unit is a creature of cyberspace in a holding account, transferred and then surrendered to meet statutory obligations but could be subjected to fraud.

Emissions trading will be undertaken by businesses and the corporate implications of reducing greenhouse gases are considered in chapter four. Shareholders, creditors, insurance agents and employees are adjusting to a low carbon world. Investors see a competitive advantage in investing in businesses which seek to avoid strict regulation, strengthen customer loyalty, access talented employees and enhance business relationships. Corporate disclosure of greenhouse gas emissions and financial reporting of climate change risks are forcing the market to reduce greenhouse gas emissions. Directors need to be aware of the risks through directors' duties and shareholder resolutions have prompted directors into action. Such representations of reducing greenhouse gas emissions, however, have the potential to be misleading and deceptive. It is argued that an informed market with accurate information will reward enterprising businesses which turn these risks into opportunities.

With the market driving reductions in greenhouse gases, chapter five analyses the development of renewable energy across New Zealand for electricity production. Renewable resources not only reduce greenhouse gases but allow diversification and security of supply. This chapter assesses the legal impediments to the uptake of such technologies through an analysis of environmental effects of hydro, geothermal, wind and marine energy resources. It is submitted that ownership of these renewable resources is such that no one owns these resources but that entitlement is only granted for the sustainable use of that resource. This ownership model has been interpreted to create a "first-in-first-served" principle of resource allocation which would seem inconsistent with the sustainable management of resources required under the RMA 1991. Competition over renewable resources means that limits to resources are being found. The adverse environmental effects on Maori cultural concerns over water, geothermal, wind, and marine resources prove a ubiquitous subject.

The sixth chapter ensures that all energy is used efficiently and conserved if possible. The voluntary and financial approach of the Energy Efficiency and Conservation Authority attempts to break down market barriers. Barriers can be created through the disaggregation of rights. It is noted that initiatives supported by the Authority is driving industry, business, transmission and distribution of electricity to efficient outcomes. In the residential sector, smart meters, efficient consumer products, insulation, heating and hot water systems are proliferating through a mixture of regulations. The development of solar energy for hot water and electricity is on the rise even though feed-in tariffs have been ignored. Reducing greenhouse gas emissions in the transportation sector is being met with fuel economy labelling and public transportation rather than vehicle emission standards. This chapter argues that such initiatives in New Zealand are unguided. The unregulated environment favouring consumer choice may be overlooking cost-effective opportunities to reduce greenhouse gas emissions.

Sequestration forms the basis of the last chapter to mitigating climate change. Sequestration of greenhouse gas emissions can be achieved by biosequestration or geosequestration. Biosequestration refers to the uptake of greenhouse gases in vegetation which can subsequently be used for energy in the form of biomass (solid), biofuels (liquid) or biogas (gas). The greatest emphasis has been on trees but a confusion of property law rights is impeding the development of carbon sequestration rights. More than four statutes regulate forestry in New Zealand alongside traditional property law mechanisms. When carbon is stored in the soil, the landowner is the owner which may not in fact be desirable. In a similar way, geosequestration where greenhouse gases are captured, transported, injected and stored in a geological storage reservoir is lacking a legal framework creating uncertain and potentially inequitable outcomes. All these forms of sequestration need to address thoroughly permanence, leakage, additionality, measurement and verification challenges.

Drawing to a conclusion at a deeper jurisprudential level, this thesis is an exposition on the nature of property. This thesis advances applying stewardship principles so that no one owns the atmosphere but is only able to use it. Fossil fuels such as coal, oil and gas can be owned<sup>2</sup> but renewable fugacious resources such as water, geothermal, wind, marine and solar resources like the legal treatment of wild animals cannot be owned until capture.<sup>3</sup> This submission reflects the reality that enabling sustainability requires cooperation and property rights are not absolute. Conflicts over renewable resources are, therefore, just debates over sustainability. The challenge of climate change is typically presented as the tragedy of the commons where no person has the right to exclude others from the atmosphere to the detriment of all.<sup>4</sup> That is, there are insufficiently defined property rights. A complementary theory, the tragedy of the anti-commons, is where multiple owners with disaggregated rights fight to exclude others from a resource which results in underuse.<sup>5</sup> In this light, disaggregated property rights may be creating such a tragedy inhibiting solutions to climate change.

Mitigating climate change through reducing greenhouse gases emissions integrates a number of environmental law principles into the governing legal framework. The international law concept of sustainable development forms the apex of these principles. It is different, although linked, to the narrower aim of sustainable management in the RMA 1991.<sup>6</sup>

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<sup>2</sup> CMA 1991, s 10.

<sup>3</sup> See generally: Wayne Morrison (ed) *Blackstone's Commentaries on the Law of England: Book II* (Oxford, Cavendish, 2001) at [14]; Anthony Scott *The Evolution of Resource Property Rights* (Oxford University Press, Oxford, 2008).

<sup>4</sup> Garrett Hardin "The Tragedy of the Commons" (1968) 164 Science 1243.

<sup>5</sup> Michael Heller "The Tragedy of the Anti-Commons: From Marx to Markets" (1998) 111 Harv L Rev 621.

<sup>6</sup> RMA 1991, s 5(1); Local Government Act 2002, s 14(1)(d); Building Act 2004, s 3(a)(iv); See generally: *St Columbia's Environmental House Group v Hawkes Bay Regional Council* [1994] NZRMA 560 (PT) at 576; Inga Carlman "The Resource Management Act 1991 Through External Eyes" (2007) 11 NZJEL 181 at 199; Stephanie Curran "Sustainable Development v Sustainable Management: The Interface between the Local Government Act and the Resource Management Act" (2004) 8 NZJEL 267 at 268; Derek Nolan (ed) *Environmental and Resource Management Law* (4<sup>th</sup> ed, LexisNexis, Wellington, 2011) at 101; Elizabeth Toomey "The Theoretical Underpinnings of RMA Participation" in Derek Nolan and others *Resource*

The principle of intragenerational equity seeks to ensure equity between people of the same generation and is related to the idea of common but differentiated responsibilities seeking environmental justice. The precautionary principle calls for precaution to be taken against climate change risk, however, this has been marginalised for economic development. The polluter pays principle is at the heart of greenhouse gas reductions and it is argued that behavioural change through all levels of society from consumers, local government, corporations, and central government is needed. Lastly, intergenerational equity is the *raison d'être* for reductions in greenhouse gases. Ensuring equity between present and future generations requires long-term investment in the future.

Responding to anthropogenic climate change has become a theme of the twenty-first century. With extensive literature, the birth of climate change law has arrived.<sup>7</sup> Conveniently, the response to climate change is divided between mitigating climate change and climate change adaptation. Mitigating climate change is about reducing greenhouse gases. Climate change adaptation is about adjusting to the effects of climate change. Due to space constraints, the latter will not be examined despite its significance. Even within the field of climate change mitigation, such topics as the exploding human population, intellectual property of technologies, the criminal “claim of right” defence for environmental activists and the role of competition law have been sidelined. The contractual elements of emissions trading have been truncated along with conflict of laws and human rights concerns.

In the future, climate change promises to permeate every area of law. The change from a society that is dependent on fossil fuels to one that utilises renewable resources will be demanding. Legal mechanisms which integrate sustainability and intergenerational objectives will ultimately see reductions in greenhouse gas emissions with the intention of mitigating climate change. Such objectives can be achieved through the law of torts, environmental law, emissions trading, business practices, renewable energy, energy efficiency or sequestration but in the end it is imperative that the law actually mitigates greenhouse gas emissions through all levels of society. New Zealand law, whether of statutory or judicial creation, needs to keep apace and remain alive to such economic, political, and societal challenges.

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*Management Act – Strategic Engagement under the RMA 1991 – Public and Clients* (New Zealand Law Society, Wellington, 2011) 57 at 74.

<sup>7</sup> Jacqueline Peel “Climate Change Law: The Emergence of a New Legal Discipline” (2008) 32 *Melb U L Rev* 922.

## Chapter 2

### The Law of Torts

I don't want to deal with global warming, to tell you the truth.

United States Supreme Court Justice Scalia<sup>1</sup>

#### *I Introduction*

Under the common law, a climate change tort could be fashioned to deter emissions of greenhouse gases and prevent the resulting damage of anthropogenic climate change. No case has yet been successful in extending the law of torts to this global phenomenon. Most cases have been rejected on the basis that a separation of powers exists between the legislature and the judiciary, which prevents the judiciary from arresting greenhouse gas emissions. As the science of climate change provides a complex link between greenhouse gas emissions and climate change, the law has found the link too attenuated to provide redress. Even though theoretically tort should remedy physical property damage, there have proved significant hurdles for remediation. This chapter argues that the public nuisance of climate change provides an unreasonable interference with the comfort and convenience of the public. Courts should be unafraid to assess thoroughly the public utility of greenhouse gas emissions with the associated climate change damage provided the damage is a reasonably foreseeable consequence of greenhouse gas emissions as contended. Equivalent questions can be considered in a tort of negligence or product liability. Causation could be satisfactorily addressed through a proportional risk-based assessment. Even though it is improbable that a climate change tort will be created by the courts, as greenhouse gas emissions enter society's consciousness and climate change damage become rampant, the challenges of a climate change tort can, it is argued, be overcome with cautious development.

#### *II The Science*

Climate change law as a discipline has grown out of scientific research on climate change. It is therefore necessary to understand the science of climate change before embarking on any legal discussion. The Intergovernmental Panel for Climate Change (the IPCC) has been the key assessor and disseminator of such science. Formed in 1988, it is composed of several hundred specialists nominated by their governments or selected because of their specialities.<sup>2</sup> The IPCC is charged with providing a comprehensive, objective and transparent analysis of all scientific, technical and socio-economic information on climate

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<sup>1</sup> *Massachusetts v EPA* Transcript 05-1120, 29 November 2006 at 23 as cited by Hari Osofsky "The Intersection of Scale, Science, and Law in *Massachusetts v EPA*" in William Burns and Hari Osofsky (ed) *Adjudicating Climate Change: State, National and International Approaches* (Cambridge University Press, New York, 2009) 129 at 129.

<sup>2</sup> Mark Maslin *Global Warming: A Very Short Introduction* (Oxford University Press, Oxford, 2009) at 13-14.

change.<sup>3</sup> Divided into three Working Groups, Working Group I summarises the physical science of climate change, Working Group II focuses on adaptation and Working Group III examines mitigation strategies.<sup>4</sup> Together these Groups combine to form Assessment Reports. The Assessment Reports that are produced synthesise and evaluate the peer-reviewed and internationally available literature. These Reports are then peer-reviewed.<sup>5</sup> An executive summary of the reports is subsequently made into Summaries for Policymakers.

The IPCC explains that the Earth's surface temperature change is driven by the balance between the incoming energy from the Sun and that which is reflected directly back to space or radiated as heat.<sup>6</sup> Some of the incoming solar energy is absorbed by the atmosphere but most is absorbed by land and oceans.<sup>7</sup> This energy is radiated as heat to space but is impeded by gases in the atmosphere known as greenhouse gases (including water vapour, carbon dioxide, ozone, methane, nitrous oxide as well as complex industrial substances).<sup>8</sup> Without these, the Earth would be minus 19°C rather than the global average of 14°C.<sup>9</sup> This is known as the greenhouse effect. There are a number of other temperature forcings. As the Earth varies its elliptical orbit and tilt of its axis, there has been the waxing and waning of ice ages.<sup>10</sup> Other forcings include solar output, cosmic dust, clouds and volcanic eruptions.<sup>11</sup> The IPCC, however, has stated that despite these natural forcings, the reason for an increase in temperature of the Earth's surface is very likely due to increases in anthropogenic greenhouse gases.<sup>12</sup> The increase in greenhouse gases have come from the burning of fossil fuels (gas, oil, coal), methane from ruminoid animals and decaying landfills, nitrous oxide from fertiliser use and complex gases from industrial uses.<sup>13</sup> This has meant that the Twentieth Century saw Earth warm by an average of 0.76°C and a 0.17 metre rise in the average sea level.<sup>14</sup> In the twenty-first century, global temperatures could rise between 1.1°C and 6.4°C with a sea level rise of between 0.18 and 0.59 metres.<sup>15</sup>

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<sup>3</sup> At 13.

<sup>4</sup> Intergovernmental Panel on Climate Change (ed) *Climate Change 2007: The Physical Science Basis: Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge University Press, Cambridge, 2007); Intergovernmental Panel on Climate Change (ed) *Climate Change 2007: Impacts, Adaptation and Vulnerability: Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge University Press, Cambridge, 2007); Intergovernmental Panel on Climate Change (ed) *Climate Change 2007: Mitigation: Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge University Press, Cambridge, 2007).

<sup>5</sup> Maslin, above n 2, at 14.

<sup>6</sup> IPCC *The Physical Science Basis*, above n 4, at 96.

<sup>7</sup> At 96.

<sup>8</sup> At 100 and 115.

<sup>9</sup> At 97.

<sup>10</sup> At 445.

<sup>11</sup> At 96-97.

<sup>12</sup> At 10.

<sup>13</sup> IPCC *Mitigation*, above n 4, at 10.

<sup>14</sup> IPCC *The Physical Science Basis*, above n 4, at 5 and 7.

<sup>15</sup> At 13.

How these global temperatures have been collated has been a crucial tenet of sceptical arguments against anthropogenic global warming. For instance, the sophistication of instrumentation in testing temperature has changed over time and testing temperature from sea (at least initially) has depended on a range of factors. Temperature has also been taken from radiosondes in balloons as well as satellite infrared spectrometers.<sup>16</sup> Obtaining temperatures prior to the beginnings of industrialisation requires proxy data. This is data obtained from ice cores, sediments, speleotherms (stalagmites and stalactites), coral and tree rings.<sup>17</sup> The “Urban Heat Island Effect” has also been an accounting challenge for scientists, as it is warmer in urban environments relative to unpopulated areas.<sup>18</sup> From these temperatures, supercomputer models have tried to predict the climate of the future. It must be cautioned, however, that the models “are not infallible [but nor are the models] useless.”<sup>19</sup>

Global warming sceptics have extensively pointed out discrepancies. This includes the fact that a mild global cooling between the 1940s and 1970s meant many scientists thought that a global ice age was impending.<sup>20</sup> They point towards the medieval warming period.<sup>21</sup> They state that a naturally warming climate releases more greenhouse gases into the atmosphere.<sup>22</sup> They consider polar bears are more likely to be killed by hunters than from adapting to global warming.<sup>23</sup> They reveal discrepancies in Michael Mann’s so-called hockey-stick graph used in Al Gore’s *An Inconvenient Truth*.<sup>24</sup> They use hacked emails compiled out of context in the Climategate controversy to mislead the public.<sup>25</sup> The main sceptic argument is that the “[c]limate has always changed. It always has and always will... Extinctions of life are normal... Climate changes are cyclical and random.”<sup>26</sup>

While these concerns are legitimate, there are good reasons for seeing a causal relationship between greenhouse gases and a rise in twentieth century temperatures. Worryingly, there is evidence of abrupt change in palaeoclimatologic data under natural circumstances so any tampering with the climate system has the possibility of happening very quickly (the so-called “bath tub effect”).<sup>27</sup> Most importantly “the combined radiative forcing due to increases in carbon dioxide, methane, and nitrous oxide... and its rate of increase

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<sup>16</sup> Gareth Morgan and John McCrystal *Poles Apart: Beyond the Shouting, Who’s Right about Climate Change?* (Random House NZ, Auckland, 2009) at 60-61.

<sup>17</sup> At 64-72.

<sup>18</sup> At 48-49.

<sup>19</sup> At 81.

<sup>20</sup> Maslin, above n 2, at 27.

<sup>21</sup> Ian Wishart *Air Con: The Seriously Inconvenient Truth about Global Warming* (Howling at the Wind Publishing, Auckland, 2009) at 73.

<sup>22</sup> Maslin, above n 2, at 55-56.

<sup>23</sup> Wishart, above n 21, at 128.

<sup>24</sup> Haydn Washington and John Cook *Climate Change Denial: Heads in the Sand* (Earthscan, London, 2011) at 56-57.

<sup>25</sup> At 43-45.

<sup>26</sup> Ian Plimer *Heaven + Earth: Global Warming: The Missing Science* (Connor Court Publishing, Ballan, 2009) at 10.

<sup>27</sup> Morgan and McCrystal, above n 16, at 144.



during the industrial era is very likely to have been unprecedented in more than 10,000 years.”<sup>28</sup> In addition, palaeoclimatologic data has indicated that change to the climate usually occurs in the southern hemisphere before the northern hemisphere but the twentieth century has not seen such a time lag with the northern hemisphere warming “ahead of any clear signal” from the southern hemisphere.<sup>29</sup> In the IPCC words, “[m]ost of the observed increase in global average temperatures since the mid-[twentieth] century is very likely due to [increased] anthropogenic greenhouse gas concentrations.”<sup>30</sup>

The consequences of such global warming will lead to climatic change. There are positive features of climate change including an increase in plant growth from carbon dioxide, an ice-free Northwest Passage and less cold-related deaths.<sup>31</sup> The negative features of climate change include: sea level rise; reduced snow cover as well as reduced glacier length (less melt for rivers); melting permafrost; acidification of the oceans; coral bleaching; tropical diseases in temperate zones; risk of wildfires; and risk of extinction for vulnerable species.<sup>32</sup> The gravest concern is a general increase in extreme weather events such as droughts, heat waves, cyclones, tornados, and typhoons.<sup>33</sup> For New Zealand, climate “is dominated by” the oceans surrounding the country.<sup>34</sup> With an increase in westerly wind flow over New Zealand, it is predicted that the west will become wetter and the east drier in New Zealand.<sup>35</sup> These “[s]mall shifts of climate can mean big changes at ground level.”<sup>36</sup> All in all, water is “likely to be the biggest issue – too much in some places, too little in others.”<sup>37</sup> This will see increased conflict over resources for worldwide food and energy security.

### *III The Law of Torts*

Turning to the law of torts, a tort as a civil wrong is “concerned with those situations where the conduct of one person causes harm to or invades the interests of another.”<sup>38</sup> The question for tort law is therefore to “determine when [loss] should be shifted to another” which will usually turn on fault although liability can also be strict without proof of fault.<sup>39</sup> There are, of course, other objectives to tort law including “influenc[ing] conduct, promot[ing] safety, and deter[ing] wrongful behaviour.”<sup>40</sup> Tort law can, therefore, “help create a climate of opinion in a particular profession or discipline that encourages taking

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<sup>28</sup> IPCC *The Physical Science Basis*, above n 4, at 3.

<sup>29</sup> Morgan and McCrystal, above n 16, at 144.

<sup>30</sup> IPCC *The Physical Science Basis*, above n 4, at 10.

<sup>31</sup> Gareth Renowden *Hot Topic: Global Warming and the Future of New Zealand* (AUT Media, Auckland, 2007) at 64-76.

<sup>32</sup> IPCC *Impacts, Adaptation and Vulnerability*, above n 4, at 16.

<sup>33</sup> At 16.

<sup>34</sup> Renowden, above n 31, at 54.

<sup>35</sup> At 56.

<sup>36</sup> At 61.

<sup>37</sup> At 76.

<sup>38</sup> Stephen Todd (ed) *The Law of Torts in New Zealand* (5<sup>th</sup> ed, Brookers, Wellington, 2009) at 1.

<sup>39</sup> At 14.

<sup>40</sup> At 16.

care.”<sup>41</sup> Nevertheless, there are additional ways of influencing conduct outside the law of torts including criminal law and regulatory control.<sup>42</sup> Speaking on the aims of litigation, Kaminskaitė-Salters considers these aims are receiving compensation for loss sustained, deterrence, regulatory change, and awareness through media exposure.<sup>43</sup> Therefore, the ultimate aim of a corporate tort lawsuit is to provide market deterrence through economic efficient mechanisms. This “provide[s] indirect incentives to people not to cause harm or loss to others” especially where conduct is intentional or reckless.<sup>44</sup>

The common law tort of nuisance would seem, at first glance, appropriate for climate change. There are two forms, private and public, which provide for the “unreasonable interference with a person’s right to the use or enjoyment of an interest in land” and the “unreasonable interference with the comfort and convenience of a section of the public” respectively.<sup>45</sup> Private nuisance is limited by the requirement of an interest in land and requirements of geophysical proximity.<sup>46</sup> It would therefore exclude non-stationary sources of greenhouse gases. Stationary industries would still remain potentially liable although unable to be sued by those without “such causes being linked to land” interests.<sup>47</sup> Trespass is unlikely to be appropriate if the trespass is negligent rather than intentional<sup>48</sup> or where it is “merely the indirect or consequential result of the defendant’s act.”<sup>49</sup> Similarly, *Rylands v Fletcher* will be unhelpful because of the need for an interest in land, a non-natural use of land, a pollution pathway where a mischief escapes from the defendant’s land to be established as well as the need for isolated acts.<sup>50</sup> Thus, public nuisance seems the most suitable tort for development.

#### *IV Separation of Powers*

Drawing upon United States case law, most cases alleging a climate change public nuisance have been thrown out on the basis of standing or presenting a non-justiciable political question.<sup>51</sup> Standing in the United States system is stringent.<sup>52</sup> The first requirement

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<sup>41</sup> At 16.

<sup>42</sup> At 16.

<sup>43</sup> Giedrė Kaminskaitė-Salters *Constructing a Private Climate Change Lawsuit under English Law: A Comparative Perspective* (Kluwer Law International, Bedfordshire, 2010) at 29-30.

<sup>44</sup> Todd, above n 38, at 16.

<sup>45</sup> At 462.

<sup>46</sup> At 478; Kaminskaitė-Salters, above n 43, at 125.

<sup>47</sup> Kaminskaitė-Salters, above n 43, at 125.

<sup>48</sup> Todd, above n 38, at 424.

<sup>49</sup> At 434.

<sup>50</sup> Kaminskaitė-Salters, above n 43, at 148-149.

<sup>51</sup> *California v General Motors* 2007 US Dist LEXIS 68547 (ND Cal 17 September 2007); *Comer v Murphy Oil USA* 2007 WL 6942285 (SD Miss 30 August 2007); *Comer v Murphy Oil USA* 2012 WL 933670 (SD Miss 20 March 2012); *Comer v Murphy Oil USA* 585 F 3d 855 (5th Cir 2009); *Comer v Murphy Oil USA* 607 F 3d 1049 (5th Cir 2009); *Comer v Nationwide Mutual Insurance* 2006 WL 1066645 (SD Miss 23 February 2006); *Connecticut v American Electric Power* 2005 US Dist LEXIS 19964 (SD NY 15 September 2005); *Connecticut v American Electric Power* 582 F 3d 309 (2nd Cir 2009); *American Electric Power v Connecticut* 564 US \_

for sufficient standing requires injury in fact which is concrete, particularised, actual or imminent and not conjectural. Next, the injury must be fairly traceable to the challenged action of the defendant. Finally, it must be possible for the injury to be redressed by a favourable decision. Climate change presents the problem of anticipatory harm as well as real physical harm as the harm is traced through a complex lattice of phenomenon. Preventing the harm through a mass halt of greenhouse emissions when society is almost exclusively reliant upon the greenhouse gas emissions will create extensive economic chaos. This point was implicit in the minority opinion of *Massachusetts v EPA* in the United States Supreme Court.<sup>53</sup> The majority deemed it possible for greenhouse gas emissions to be regulated by the Environmental Protection Agency (EPA) under the Clean Air Act.<sup>54</sup> The majority relied upon the sovereignty of the States to protect its citizens in granting standing. In New Zealand, there is considerable leniency towards standing because “[a]ny tendency to consider the issue of standing in [isolation] from the nature of the complaint is resisted.”<sup>55</sup>

In the United States, the rejection of standing has often been used in conjunction with the non-justiciable political question doctrine which forms part of the separation of powers. It provides that the judiciary should not usurp other branches of government where another branch is better suited to resolve the issue. The statement of *Baker v Carr* is critical:<sup>56</sup>

Prominent on the surface of any case held to involve a political question is found [(1)] a textually demonstrable constitutional commitment of the issue to a coordinate political department; or [(2)] a lack of judicially discoverable and manageable standards for resolving it; or [(3)] the impossibility of deciding without an initial policy determination of a kind clearly for nonjudicial discretion; or [(4)] the impossibility of a court’s undertaking independent resolution without expressing lack of the respect due coordinate branches of government; or [(5)] an unusual need for unquestioning adherence to a political decision already made; or [(6)] the potentiality of embarrassment from multifarious pronouncements by various departments on one question.

The United States Supreme Court cautioned that political issues do not make a decision non-justiciable as the question is one of political questions not political cases.<sup>57</sup> The argument is that the question involves adjudication of the nation’s foreign relations which is the prerogative of the executive. In addition, the judiciary should not regulate by judicial decree issues where there is the requirement to resolve complex scientific problems. In *Comer v Murphy Oil*, land owners along Mississippi’s Gulf Coast brought a class action against oil and energy companies operating within the United States for the destruction of

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(2011); *Korsinsky v EPA* 2005 US Dist LEXIS 21778 (SD NY 29 September 2005); *Native Village of Kivalina v Exxon Mobil* 663 F Supp 2d 863 (ND Cal 2009)

<sup>52</sup> *Lujan v Defenders of Wildlife* 504 US 555 (1992) at 560; Blake Bertagna ““Standing” Up for the Environment: The Ability of Plaintiffs to Establish Legal Standing To Redress Injuries Caused by Global Warming” (2006) *BYU L Rev* 415 at 422.

<sup>53</sup> *Massachusetts v EPA* 549 US 497 (2007) at 541.

<sup>54</sup> At 534.

<sup>55</sup> *Budget Rent A Car Ltd v Auckland Regional Authority* [1985] 2 NZLR 414 (CA) at 419 as cited by Philip Joseph *Constitutional and Administrative Law in New Zealand* (3<sup>rd</sup> ed, Brookers, Wellington, 2007) at 1130.

<sup>56</sup> *Baker v Carr* 369 US 186 (1962) at 217.

<sup>57</sup> At 217.

their property following Hurricane Katrina.<sup>58</sup> Climate change was argued to intensify the effects of Hurricane Katrina through a rise in global temperatures. The District Court held that “to balance economic, environmental, foreign policy, and national security interests [involves] an initial policy determination of a kind which is simply nonjudicial.”<sup>59</sup>

In New Zealand, the United States political question doctrine involves a policy appraisal of the separation of powers doctrine.<sup>60</sup> It is usually subsumed into the statutory interpretation of any statute law which is known in the United States as displacement. In New Zealand, the Climate Change Response Act 2002 (CCRA 2002) is to enable New Zealand to meet its international obligations of the international climate change framework including reporting requirements.<sup>61</sup> The CCRA 2002 provides:<sup>62</sup>

for the implementation, operation, and administration of a greenhouse gas emissions trading scheme in New Zealand that supports and encourages global efforts to reduce greenhouse gas emissions... and by reducing New Zealand's net emissions below business-as-usual levels.

Awkwardly, s 104E of the Resource Management Act 1991 (RMA 1991) adds:<sup>63</sup>

a consent authority [when considering an application for resource consent for a discharge permit] must not have regard to the effects of such a discharge on climate change except to the extent that the use and development of renewable energy enables a reduction in the discharge into air of greenhouse gases.

The relevance of these statutes will be extensively discussed later. For present purposes, there is no explicit statement of immunity from suit for climate change damage within these Acts.<sup>64</sup> Nevertheless, it should be noted that in *Langdon v Bailey*, Panckhurst J has questioned whether public nuisance “remains relevant in modern conditions” owing to the extensive environmental regulatory framework.<sup>65</sup>

Certainly, the Supreme Court of the United States in *American Electric Power v Connecticut* has rejected injunctions as a form of remedy in a public nuisance lawsuit for climate change because “the Clean Air Act and the [EPA] actions it authorises displace any federal common law right to seek abatement of carbon-dioxide emissions.”<sup>66</sup> There, eight states and three land trusts sued six power companies seeking abatement of the defendants’

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<sup>58</sup> *Comer v Murphy Oil USA* 2007 WL 6942285 (SD Miss 30 August 2007); *Comer v Murphy Oil USA* 2012 WL 933670 (SD Miss 20 March 2012); *Comer v Murphy Oil USA* 585 F 3d 855 (5th Cir 2009); *Comer v Murphy Oil USA* 607 F 3d 1049 (5th Cir 2009); *Comer v Nationwide Mutual Insurance* 2006 WL 1066645 (SD Miss 23 February 2006).

<sup>59</sup> *Comer v Murphy Oil USA* 585 F 3d 855 (5th Cir 2009) at 860.

<sup>60</sup> Nicola Durrant *Legal Responses to Climate Change* (Federation Press, Sydney, 2010) at 301.

<sup>61</sup> Climate Change Response Act 2002 [CCRA 2002], s 3.

<sup>62</sup> CCRA 2002, s 3.

<sup>63</sup> RMA, s104E; *Genesis Power Ltd v Greenpeace NZ* [2009] 1 NZLR 730 (SC).

<sup>64</sup> See generally: CCRA 2002, s 63.

<sup>65</sup> *Langdon v Bailey* [2001] NZAR 120 (HC) at 124.

<sup>66</sup> *American Electric Power v Connecticut* 564 US \_ (2011) at 10.

contributions to the public nuisance of climate change. The Supreme Court found that the statutory background “provides a means to seek limits on emissions of carbon dioxide... [There is] no room for a parallel track.”<sup>67</sup> While the lower court had held that there was room for a climate change public nuisance, the Supreme Court disagreed. It stated that the delegation of authority to the EPA to regulate greenhouse gas emissions displaced the federal common law.<sup>68</sup> Any decision of the EPA to not exercise its delegated authority would be a question for administrative law.<sup>69</sup> Hence, injunctions in light of *Connecticut* will be limited. However for Kaminskaitè-Salters, damages remain an arguably viable alternative because as an ex-post (rather than ex-ante) instrument, damages would redress wrongs already caused.<sup>70</sup>

### *V Potential Plaintiffs and Defendants*

With these reservations in mind, consideration ought to be given to a hypothetical climate change lawsuit under New Zealand law. At the outset, the most rudimentary question as to the potential plaintiffs and potential defendants must be asked. There are the traditional civil procedural hurdles to bringing such a lawsuit. Central government, local authorities, non-governmental organisations (NGOs), indigenous peoples, private businesses and individuals are all potential plaintiffs. NGOs can be divided into two categories: those who suffer direct loss due to climate change and those organisations that merely protect an interest. The latter group may find it difficult to launch climate claims as there would not seem to be an actionable wrong.<sup>71</sup> The ability of foreign claimants to sue in the New Zealand courts for damage is a moot question concerning choice of law in the realm of conflict of laws.<sup>72</sup> In international law, there are formidable problems concerning the jurisdiction of the International Court of Justice.<sup>73</sup>

The most desirable plaintiff, in the author’s view, would be New Zealand’s non-self governing state of Tokelau.<sup>74</sup> Tokelau forms part of New Zealand under the Tokelau Act 1948.<sup>75</sup> Despite s 6 of the 1948 Act which states that statute law of New Zealand is not applicable to Tokelau, New Zealand statute law can and often does form part of Tokelau law. The Tokelau judiciary system is intermixed with the New Zealand system with the exception of the Judicial Committee of the Privy Council as the final appellate court.<sup>76</sup> While Tokelau’s population is a mere 1,400, Tokelau is explicitly vulnerable to a sea level rise with many of

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<sup>67</sup> At 11.

<sup>68</sup> At 12.

<sup>69</sup> At 12.

<sup>70</sup> Kaminskaitè-Salters, above n 43, at 76.

<sup>71</sup> At 63-64.

<sup>72</sup> At 65-69.

<sup>73</sup> Shi-Ling Hsu “A Realistic Evaluation of Climate Change Litigation Through the Lens of a Hypothetical Lawsuit” (2008) 79 U Colo L Rev 701 at 728.

<sup>74</sup> See *Native Village of Kivalina v Exxon Mobil* 663 F Supp 2d 863 (ND Cal 2009).

<sup>75</sup> Tokelau Act 1948, s 3.

<sup>76</sup> Tony Angelo and Talei Pasikale “Tokelau: A History of Government” (2008) Tokelau <[www.tokelau.org.nz](http://www.tokelau.org.nz)> at 36.

its atolls just metres above sea level.<sup>77</sup> Premier Foua Toloa has stated that climate change is already leaving its “ugly mark” on Tokelau.<sup>78</sup> In early 2005, Cyclone Percy struck Tokelau putting most of Tokelau under seawater. It caused widespread damage to infrastructure and crops including bananas, coconuts and pandanus. The salination of Tokelau’s water supplies and territory means vegetation is dying and, for Premier Foua Toloa, stealing their food.

A related question continuing to vex legal scholars is the extent to which future generations may have standing as plaintiffs in any area of law.<sup>79</sup> In New Zealand, the extension of legal standing to future generations is doubtful. Arguments of intergenerational equity are not excluded from the law but usually integrated into arguments of current harm.<sup>80</sup> A related concept to future generations standing in the United States is the public trust doctrine.<sup>81</sup> The concept is that governments “hold natural resources in trust for their citizens and bear the fiduciary obligation to protect such resources for future generations... as an attribute of sovereignty itself.”<sup>82</sup> Atmospheric trust litigation posits the atmosphere as a trust asset and would impose a governmental fiduciary obligation to reduce greenhouse gases. Therefore, a government “can no more abdicate its trust over property [than] abdicate its police powers.”<sup>83</sup> A trustee who damages the trust assets acts in breach of trust and thereby commits waste. Waste of the trust asset requires recuperation and like all trusts, trust accounting is required. To this end, Our Children’s Trust has initiated proceedings in the United States to force governments to protect the atmosphere in trust for present and future citizens.<sup>84</sup> While “the atmosphere is an endowment [and] failure to safeguard it amounts to generational theft”, the legal basis for a public trust in New Zealand would seem the restricted concept in s 5 of the RMA 1991 which excludes minerals from intergenerational equity.<sup>85</sup> In the United States, *Connecticut* creates hurdles for the public trust doctrine.

Returning to tort law, potential defendants seem inexhaustible. Given causation requirements, however, entities must have made a material contribution to any harm.<sup>86</sup> The most likely defendants, therefore, include entities that supply fossil fuels (gas, oil and coal companies), entities that create greenhouse gases (electricity), and entities that manufacture

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<sup>77</sup> Ruth Laugesen “New Zealand’s Forgotten Isles” (11 July 2009) Listener <[www.listener.co.nz](http://www.listener.co.nz)>.

<sup>78</sup> Laugesen, above n 77.

<sup>79</sup> Sacha Hollis “Old Solutions to New Problems: Providing for Intergenerational Equity in National Institutions” (2010) 14 NZJEL 25 at 37; Bradford Mank “Standing and Future Generations: Does *Massachusetts v EPA* Open Standing for Generations to Come?” (2009) 34 Colum J Envtl L 1 at 9.

<sup>80</sup> Kaminskaitė-Salters, above n 43, at 78.

<sup>81</sup> Ken Coghill, Charles Sampford and Tim Smith *Fiduciary Duty and the Atmospheric Trust* (Ashgate Publishing Ltd, Farnham, 2012).

<sup>82</sup> Mary Wood “Atmospheric Trust Litigation” in William Burns and Hari Osofsky (ed) *Adjudicating Climate Change: State, National and International Approaches* (Cambridge University Press, New York, 2009) 99 at 99.

<sup>83</sup> *Illinois Central Railroad Co v Illinois* 146 US 387 (1892) at 460 as cited in Wood, above n 82, at 103.

<sup>84</sup> Our Children’s Trust “Atmospheric Trust Litigation” (2012) <<http://ourchildrenstrust.org>>.

<sup>85</sup> Wood, above n 82, at 123.

<sup>86</sup> *Fairchild v Glenhaven Funeral Services* [2002] 3 All ER 305 (HL); *Barker v Corus (UK) Ltd* [2006] 2 AC 572 (HL); *Resurfice Corpe v Hanke* [2007] 1 SCR 333; *Sienkiewicz v Greif* [2011] 2 All ER 857 (HL).

products which create greenhouse gases (vehicle manufacturers, aluminium industry, cement industry and arguably the manufacture of animal by-products). Another arguable defendant would be governmental authorities but conduct may be better challenged under administrative law. Grouping defendants together should help “overcome issues... that would apply to individual emitters’ contribution to climate change.”<sup>87</sup> Moreover, the extent to which consumers maintain any substantial control over greenhouse gas emissions is debatable given the level of consumer (unlike corporate) knowledge of the risks of greenhouse gases.<sup>88</sup>

## *VI Public Nuisance*

Continuing with the hypothetical climate change lawsuit, the tort law cause of action most appropriate for climate change is public nuisance. The public nuisance must be “so widespread in its range or so indiscriminate in its effect that... it should be taken on the responsibility of the community at large.”<sup>89</sup> Although public nuisance can also intersect with criminal law,<sup>90</sup> it is a flexible concept which has included in the past the obstruction of highways with vehicles,<sup>91</sup> siltation of navigable rivers,<sup>92</sup> street meetings,<sup>93</sup> excessive obscene phonecalls,<sup>94</sup> stock sales yards,<sup>95</sup> attraction of animals,<sup>96</sup> activities of a quarry,<sup>97</sup> the sale of food unfit for human consumption,<sup>98</sup> hoax bomb threats,<sup>99</sup> letters laced with salt as anthrax<sup>100</sup> and prostitutes on streets which compromise public morality.<sup>101</sup> While the Attorney-General would normally bring the action either personally or on behalf of private individuals, private individuals are able to bring an action only if that individual has experienced some special damage over and above the public.<sup>102</sup> Special damage will qualify if it is different in kind or to an “appreciably greater in degree than any suffered by [the public].”<sup>103</sup>

For public nuisance, the standard of liability is strict liability for creating a continuing interference with public rights and fault based liability for failing to abate a continuing interference with public rights.<sup>104</sup> Absence of negligence is no defence although the unreasonableness of the conduct complained of is necessary for establishing liability. Actual

<sup>87</sup> Kaminskaitė-Salters, above n 43, at 73.

<sup>88</sup> David Grossman “Warming Up to a Not-so-Radical Idea: Tort-Based Climate Change Litigation” (2003) 28 Colum J Envtl L 1 at 28.

<sup>89</sup> *Attorney General v PYA Quarries Ltd* [1957] 2 QB 169 (CA) at 191.

<sup>90</sup> Crimes Act 1961, s 145; See *R v Andersen* [2005] 1 NZLR 774 (CA).

<sup>91</sup> *Fritz v Hobson* (1880) 14 Ch D 542.

<sup>92</sup> *Tate & Lyle Industries Ltd v Greater London Council* [1983] 2 AC 509 (HL).

<sup>93</sup> *Animal Liberation (Vic) Inc v Gasser* [1991] 1 VR 51 (FC).

<sup>94</sup> *R v Norbury* [1978] Crim LR 435; Compare: *R v Rimmington* [2006] 2 All ER 257 (HL) at [37].

<sup>95</sup> *Attorney-General v Abraham and Williams Ltd* [1949] NZLR 461 (CA).

<sup>96</sup> *Wandsworth London Borough Council v Railtrack* [2002] QB 756 (CA).

<sup>97</sup> *Attorney-General v PYA Quarries Ltd* [1957] 2 QB 169 (CA).

<sup>98</sup> *R v Stevenson* (1862) 176 ER 48.

<sup>99</sup> *R v Madden* [1975] 1 WLR 1379 (CA).

<sup>100</sup> *R v Goldstein* [2004] 2 All ER 589 (CA).

<sup>101</sup> *Attorney-General for British Columbia v Couillard* (1984) 11 DLR (4<sup>th</sup>) 567 (BCSC).

<sup>102</sup> Todd, above n 38, at 508.

<sup>103</sup> *Walsh v Ervin* [1952] VLR 361 (SC) at 371.

<sup>104</sup> Todd, above n 38, at 509-512.

physical damage is usually sufficient to establish unreasonableness, although a general public interference will require that the conduct exceeds that which reasonable members of the public should be expected to tolerate.<sup>105</sup> The law of nuisance must strike a balance between what is fair including looking to the severity of the effect of the defendant's activity as against the reasonableness of the plaintiff's activities. Any court will give consideration to the nature of the harm, relevance of the locality, the time of day of interference, its intensity, and the duration of the harm. Implicit within the unreasonableness threshold is the social utility of the activity. A problem for defendants is that just because a universal activity benefits the general public does not provide a defence because it is the injury that is inflicted on the plaintiff which is the focus of the inquiry.<sup>106</sup> It must be remembered there "is no public interest defence in the civil law of nuisance."<sup>107</sup> The court may take the public benefit into consideration when fashioning a remedy as an antidote to the defendant's activities.

Applying such law to the facts of a hypothetical climate change public nuisance suit presents an interesting legal dilemma. Any individual plaintiff will have to prove special damage. While the concept of unreasonableness usually focuses on locality, climate change by its very nature is global although some people will be more affected. The notion of intensity should be therefore a key concern. A test of significance will be the social utility of greenhouse gases but this should be considered at the remedial rather than liability stage. The advantages of a public nuisance claim for the plaintiff include the fact that given its strict liability nature, pure economic loss is recoverable unlike negligence<sup>108</sup> and there is no requirement for an interest in land.<sup>109</sup> While harm suffered must be a reasonably foreseeable consequence of the defendant's conduct, remoteness is not particularly challenging and will be further considered in the discussion on damage below.<sup>110</sup> The cumulative impact of a nuisance by many defendants has not barred nuisance allegations in the past.<sup>111</sup>

Undoubtedly, the defence of statutory authorisation will need to be considered. There is a distinction to be made between a duty and a mere power. The statutory authorisation of a public nuisance must be express in words of a duty rather than merely allowing a discretionary activity to take place. Therefore, a resource consent granted under the RMA 1991 does not extinguish a right to nuisance inevitably created by the use of the consent.<sup>112</sup> As the RMA 1991 does not require consideration of direct greenhouse gas emissions, the

<sup>105</sup> At 512; *Wandsworth London Borough Council v Railtrack* [2002] QB 756 (CA).

<sup>106</sup> Todd, above n 38, at 475.

<sup>107</sup> *Transco v Stockport Metropolitan Borough Council* [2004] 2 AC 1 (HL) at [61].

<sup>108</sup> Todd, above n 38, at 515.

<sup>109</sup> Peter Cashman and Ross Abbs "Liability in Tort for Damage Arising From Human-Induced Climate Change" in Rosemary Lyster (ed) *In the Wilds of Climate Law* (Australian Academic Press, Bowen Hills, 2010) 235 at 262.

<sup>110</sup> *Cambridge Water Co Ltd v Eastern Counties Leather* [1994] 2 AC 264 (HL) at 301.

<sup>111</sup> *Pride of Derby Angling Association v British Celanese Ltd* [1952] 1 All ER 1326 (Ch).

<sup>112</sup> *Hawkes Bay Protein Ltd v Davidson* [2003] 1 NZLR 536 (HC) at [19]-[20]; *Ports of Auckland Ltd v Auckland City Council* [1999] 1 NZLR 601 (HC) at 611.



question of nuisance has been left to the CCRA 2002.<sup>113</sup> The CCRA 2002 does not expressly exempt greenhouse gas emitters from liability. As Kaminskaitė-Salters argues an emissions trading scheme “rather than authorising [emissions], arguably aims to eliminate them in due course” and even if it does authorise emissions “at the most [it] creates a power.”<sup>114</sup> This interpretation of emissions trading, where there is a statutory authorisation rather than an inalienable right to emit greenhouse gas emissions, is further advanced in chapter three.

## VII Negligence

An alternative to public nuisance action for climate change is the creation of a duty of care in negligence. Like nuisance where “the categories of nuisance are not closed”,<sup>115</sup> negligence has remained flexible to societal harm. Basically, negligence involves a duty of care owed by the defendant to the plaintiff, a breach of that duty by the defendant, a causal connection between the breach and the damage caused to the plaintiff, and damage.

### A The Duty of Care

In New Zealand, a duty of care in the tort of negligence includes asking whether the defendant should reasonably have foreseen injury to his or her neighbour as the person proximately affected and whether it is just, fair and reasonable to impose a duty of care in the circumstances.<sup>116</sup> Turning to the first stage, any physical proximity between the parties is unlikely to be physical but rather causal. Causal proximity may be established where there is an “uncomplicated” close connection.<sup>117</sup> A court may find too many other factors troubling proximity. In the American context, the minority opinion in *Massachusetts v EPA* described the causal connection as “far too speculative to establish causation.”<sup>118</sup> Referring to the “tenuous link”, Roberts CJ reasoned that the majority had used “the dire nature of global warming itself as a bootstrap for finding causation and redressability.”<sup>119</sup> In the eyes of the IPCC, the so-called attenuated link is appreciable. There are real scientific reasons for finding a causal link, so the question is not factual but entirely legal. The proximity is, of course, principally complicated by other entities contributing to global warming as well as the harm being inflicted indistinguishable from natural causes. Unlike proximity, the question of foreseeability is relatively straight-forward. Knowledge of a reasonable person in the defendant’s position would suggest that his or her conduct (greenhouse gases) involved a risk of harm (climate change) to the plaintiff. With each advance in science, the foreseeability of harm becomes progressively well-established.

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<sup>113</sup> RMA 1991, s 104E; *Genesis Power Ltd v Greenpeace NZ* [2009] 1 NZLR 730 (SC).

<sup>114</sup> Kaminskaitė-Salters, above n 43, at 130.

<sup>115</sup> *Victoria Park Racing and Recreation Grounds Co Ltd v Taylor* (1937) 58 CLR 479 (HCA) at 503.

<sup>116</sup> *Couch v Attorney General* [2008] 3 NZLR 725 (SC) at [52].

<sup>117</sup> Todd, above n 38, at 143.

<sup>118</sup> *Massachusetts v EPA* 549 US 497 (2007) at 545.

<sup>119</sup> At 543.

Whether imposing a duty to take reasonable care to avoid harm on a defendant is just, fair and reasonable will present a plethora of policy problems. While wrongs need to be remedied, fairness would suggest a distribution of burdens is required. On these principles as all humans arguably produce greenhouse gases, all should be entitled to an equal distribution of the burden. This leads nowhere. Any omnipresent plaintiff is more apparent than real because damage will need to be physical rather than entirely anticipatory. Foreseeability would, likewise, act as a net because of uncertainties as to the precise effects of climate change being seen as unreasonable such as mental health issues of climate change fear.<sup>120</sup> The omnipresent defendant, similarly, could be restricted to those “biggest emitters of greenhouse gases.”<sup>121</sup> However, it must be acknowledged that a duty of care cannot be owed to the world at large as the floodgates of litigation will be opened.<sup>122</sup> In *Sutradhar v NERC*, a duty was not held to exist to the whole population of Bangladesh for negligently reporting on water which was contaminated with arsenic.<sup>123</sup> Liability could not be imputed where there was no measure of control over and responsibility for the dangerous situation.<sup>124</sup> Thus, a vulnerable Tokelau plaintiff as a group in contrast to corporate private oil or coal companies as potential defendants provides the necessary unequal distribution of harm and level of control required for remediation.

Other factors such as the defendants committing positive acts (the emission of greenhouse gases) and the harm caused being mostly actual physical damage (property damage from a sea level rise) seem to point towards liability although some harm may amount to pure financial loss (mere loss of snow). The interaction between public nuisance and negligence will also be considered.<sup>125</sup> Any defendants will be primarily private entities. Even so, an argument will be that a duty of care on greenhouse gas emitters would prevent them from conducting publicly crucial enterprises. A counter-argument is that “short-term considerations of social utility should not trump long-term concerns regarding the likely widespread harm to property and public health.”<sup>126</sup> Durrant cites “the imposition of indeterminate liability on emitters” as crucial but confining the potential plaintiffs and defendants points the other way.<sup>127</sup> Again, a strong causation argument can be put that as climate change is a global phenomenon “as a result of natural processes as well as historic and continuing anthropogenic emissions”, liability should be denied.<sup>128</sup>

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<sup>120</sup> See generally *Korsinsky v EPA* 2005 US Dist LEXIS 21778 (SD NY 29 September 2005).

<sup>121</sup> Kaminskaitė-Salters, above n 43, at 93; Hsu, above n 73, at 724.

<sup>122</sup> Todd, above n 38, at 143.

<sup>123</sup> *Sutradhar v Natural Environment Research Council* [2006] 4 All ER 490 (HL) at [31].

<sup>124</sup> At [38].

<sup>125</sup> Todd, above n 38, at 515.

<sup>126</sup> Joseph Smith and David Shearman *Climate Change Litigation: Analysing The Law, Scientific Evidence & Impacts On The Environment, Health & Property* (Presidian Legal Publications, Adelaide, 2006) at 94.

<sup>127</sup> Nicola Durrant “Tortious Liability for Greenhouse Gas Emissions? Climate Change, Causation and Public Policy Considerations” (2007) 7 QUTLJ 403 at 408.

<sup>128</sup> At 408.

## B Breach of the Duty of Care

The question of whether the defendant is negligent will present another hurdle. Common behaviour as a comparable standard, which has not “ke[pt] abreast with developing knowledge and technological advances” may still be, nonetheless, negligent.<sup>129</sup> The argument will be presented that the defendant failed to invest in alternative renewable energy sources for oil or electricity or failed to invest in energy efficient activities. Defendants, therefore, will be “assessed according to their commitment to research and investment into low-[greenhouse gas] product alternatives.”<sup>130</sup> The likelihood of the harm is significant but it is unclear how precisely all impacts will play out. This would indicate the need to apply the precautionary principle. The social utility of the defendant’s conduct will present a challenge because without the services provided by them, society would not be able to function. The counter-argument follows that defendants with the passage of time will find “it increasingly difficult to prove that low-[greenhouse gas] alternatives were unavailable or prohibitively expensive.”<sup>131</sup> The test becomes a cost-benefit analysis as to the advantages of the defendant activities “against the precautionary measures necessary in order to eliminate it.”<sup>132</sup> The Stern Review has argued that one per cent Gross Domestic Product (GDP) per year now spent on mitigating climate change will prevent a possible twenty per cent GDP per year in the future of damage associated with climate change.<sup>133</sup> When compared to the revenue of greenhouse gas emitters, the cost of reductions is hardly exorbitant.<sup>134</sup>

## C Causation

Causation in a climate change lawsuit “tests the conventional boundaries of causal proof”<sup>135</sup> and has been subjected to mass academic scrutiny.<sup>136</sup> Although “undeniably

<sup>129</sup> Todd, above n 38, at 386.

<sup>130</sup> Kaminskaitė-Salters, above n 43, at 97.

<sup>131</sup> At 99.

<sup>132</sup> At 99.

<sup>133</sup> Nicholas Stern “Summary of Conclusions” in Nicholas Stern *The Economics of Climate Change: The Stern Review* (Cambridge University Press, Cambridge, 2007) at vi.

<sup>134</sup> Kaminskaitė-Salters, above n 43, at 99.

<sup>135</sup> Elena Kosolapova “Liability for Climate Change-Related Damage in Domestic Courts: Claims for Compensation in the USA” in Michael Faure and Marjan Peeters (ed) *Climate Change Liability* (Edward Elgar, Cheltenham, 2011) 189 at 199.

<sup>136</sup> Eric Biber “Climate Change, Causation and Delayed Harm” (2009) 37 Hofstra L Rev 975; Cashman and Abbs, above n 109; Michael Duffy “Climate Change Causation: Harmonizing Tort Law and Scientific Probability” (2009) 28(2) Temple J Sci Tech & Envtl L 185; Durrant *Legal Responses to Climate Change*, above n 60; Durrant “Tortious Liability”, above n 127; Grossman “Warming Up”, above n 88; David Grossman “Tort-Based Climate Litigation” in William Burns and Hari Osofsky (ed) *Adjudicating Climate Change: State, National and International Approaches* (Cambridge University Press, New York, 2009) 193; Bradford Mank “Civil Remedies” in Michael Gerrard (ed) *Global Climate Change and US Law* (American Bar Association, Chicago, 2007); Eduardo Penalver “Acts of God or Toxic Torts? Applying Tort Principles to the Problem of Climate Change” (1998) 38 Nat Res J 563; Christopher Reeves “Climate Change on Trial: Making the Case for Causation” (2009) 32(3) Am J of Trial Advocacy 495; Matthew Skinner and Claire Forster “Tortious Climate Change Litigation: Developments and Predictions” in Wayne Gumley and Trevor Daya-Winterbottom (ed) *Climate Change Law* (Thompson Reuters, Sydney, 2009) 207; Kaminskaitė-Salters, above n 43; Smith and Shearman, above n 126; John Terry and Alex Smith “Litigation” in Dennis Mahony (ed) *The Law of Climate Change in Canada* (Canada Law Book, Toronto, 2010) ch 16.

challenging, [causation] should not (at least in the future) amount to insurmountable obstacle.”<sup>137</sup> With a little creativity and imagination, causation need not present “daunting evidentiary problems.”<sup>138</sup> In essence, there are three issues. Firstly, other entities contribute to global warming. Secondly, other entities have contributed to global warming in the past. Thirdly, the damage caused by global warming can be seen as natural (the damage itself is indistinguishable from natural factors). The traditional but-for test of causation fails demonstratively. But for the actions of defendant in emitting greenhouse gases would the damage have occurred? The answer is affirmative because there are a multitude of other factors at play including other emitters and the natural damage of climate change.

Ordinarily, from a causation perspective multiple potential defendants provide a relatively straightforward question as each can seek contribution from the others in the form of joint and several liability even though the harm seems indivisible. In *Fairchild v Glenhaven Funeral Services* involving the signature disease of mesothelioma, any one of the several employers could be liable. All were held liable (jointly and severally) as it could not be shown which asbestos fibre initiated the mesothelioma.<sup>139</sup> This was subsequently upheld in *Sienkiewicz v Greif*.<sup>140</sup> Any comparison with climate change is misleading because emissions are cumulative causes rather than consecutive replaceable causes. As multiple concurrent tortfeasors, the acts of emitters combine to cause the same seemingly indivisible damage. The manner by which that damage is to be divided up in proportion to the emitter’s contribution to global warming will be problematical given the need to address liability for historical emissions and whether a liability amnesty is appropriate.<sup>141</sup> Another difficulty rests with the notion of joint and several liability in a climate change lawsuit which can be legitimately claimed as unfair because of the widespread nature of emissions. Hence, those in favour of a climate change tort recommend a proportional market-share liability theorem because of the intensity-based contribution to climate change.<sup>142</sup>

The trouble posed through multiples causes of harm is an added challenge.<sup>143</sup> For the climate change scenario, the more a defendant emits, the greater the intensity of the damage. There are multiples causes but the risk of those causes does not remain static but rather intensifies with the increase in emissions. *Wilsher v Essex Area Health Authority* (over-oxygenation causing blindness merely added to a list of causes) is distinguishable.<sup>144</sup> Rather the concept in *McGhee v National Coal Board* (dermatitis caused by lack of washing

<sup>137</sup> Kaminskaitė-Salters, above n 43, at 152.

<sup>138</sup> *Comer v Nationwide Mutual Insurance* 2006 WL 1066645 (SD Miss 23 February 2006) at 4.

<sup>139</sup> *Fairchild v Glenhaven Funeral Services* [2002] 3 All ER 305 (HL).

<sup>140</sup> *Sienkiewicz v Greif* [2011] 2 All ER 857 (HL).

<sup>141</sup> Kosolapova, above n 135, at 201; Kirk Maag “Climate Change Litigation: Drawing Lines to Avoid Strict, Joint, and Several Liability” (2009) 98 Geo LJ 185 at 207 – 211; See also: Limitation Act 2010, s 14.

<sup>142</sup> Grossman “Warming Up”, above n 88, at 33; Lauren Case “Climate Change: A New Realm of Tort Litigation, and How to Recover When the Litigation Heats Up” (2011) 51 Santa Clara L Rev 265 at 293.

<sup>143</sup> *Amaca Ltd v Ellis* [2010] HCA 5; Duffy, above n 136, at 216.

<sup>144</sup> *Wilsher v Essex Area Health Authority* [1988] AC 1074 (HL).

facilities) of material increase in risk is apposite.<sup>145</sup> The use of epidemiological studies by the courts which use a relative risk formula (RR) will help to bear risk in mind as against background risk. A RR of 2.0 indicates that the risk is twice as likely as usual. In *Sienkiewicz v Greif*, Lord Phillips reasoned that “as a matter of logic, if a defendant is responsible for a tortious [act] that has more than doubled the risk of the victim’s [harm], it follows on the balance of probability that he has caused the [harm].”<sup>146</sup> Lord Phillips found, however, that the “the court must be astute to see that [such] evidence provides a really sound basis for determining [causation]”<sup>147</sup> and for mesothelioma such evidence was deemed “tenuous.”<sup>148</sup> Perhaps a useful conceptualisation of climate change causation is to distinguish short-term incidents (weather events) and long-term phenomenon (sea level rise, melting of permafrost). The former is inherently chaotic but the intensity of the chaos is at issue. The latter is strictly temperature. The former will have more attenuated causation with a lower RR; the latter will have a significantly closer correlation with a higher RR. In many ways, material increase in risk becomes part of the burden of proof. The question becomes whether on the balance of probabilities the defendant materially increased the risk of damage to the plaintiff.

A variant of the multiple defendants and causes argument is that there is some intervening third party conduct or there is intervening natural events which form to break the chain of causation. There is justifiable concern that “the chain of causation is broken by other parties’ emissions eclipsing their own, independently of the defendants’ actions or omission and outside their sphere of influence.”<sup>149</sup> If proportional liability is considered everyone is proportionally liable however this is calculated. The problem remains of foreign emitters of greenhouse gas emissions but defendants would principally be liable for damage in New Zealand’s jurisdiction due to conflict of laws concerns and this avoids unlimited liability. The court may also see that an intervening natural event is causative. The act of nature or act of god argument should be seen in terms of risk. There will always be acts of nature. Acts of nature are indistinguishable from climate change damage. If a comparison is made with a baseline, the defendant is liable for the material increase risk of those acts of nature.

## D Damage

The last factor, damage, is not likely to present any novel difficulties. In terms of remoteness of damage, it is unlikely to pose “any significantly greater obstacles than in other tort based claims.”<sup>150</sup> Defendants will be liable only for damage of a kind which a reasonable man should have foreseen, although the full extent of that damage will be accountable even where the extent or degree of that damage is greater than could have been expected.

<sup>145</sup> *McGhee v National Coal Board* [1973] 1 WLR 1 (HL).

<sup>146</sup> *Sienkiewicz v Greif* [2011] 2 All ER 857 (HL) at [78].

<sup>147</sup> At [91].

<sup>148</sup> At [83].

<sup>149</sup> Kaminskaitė-Salters, above n 43, at 181.

<sup>150</sup> Smith and Shearman, above n 126, at 95.

Therefore, as “the scientific understanding of climate change deepens, certain kinds of damage... will become foreseeable and therefore not too remote.”<sup>151</sup>

*Connecticut* rejected injunctions as a form of remedy in a climate change public nuisance tort because such a remedy would interfere with statutory intention.<sup>152</sup> Therefore, damages based entirely on anticipatory harm in lieu of an injunction would elicit related challenges. A claim based on current damage with associated anticipatory damages is different. Nonetheless, *Korinsky v EPA* highlights a connected problem.<sup>153</sup> There, a New York resident claimed global warming as a public nuisance claiming both mandatory and prohibitory injunctions over and above anticipatory damages. The plaintiff argued that he faced a higher risk of illness from climate change due to his respiratory problems and that, after learning of climate change dangers, he developed a mental illness. The court doubted that even if the decision was granted in the defendant’s favour the injury would be redressed. The need for real actual damage provides a fitting litmus test which can be combated with a suitable plaintiff (such as Tokelau) who can show actual harm.

### *VIII Product Liability*

Products that produce greenhouse gas emissions during operation which add to the problem of climate change could be argued to have been created defectively. A product can be created negligently in three ways. There can be a warning defect, a manufacturing defect, or a design defect. A warning defect is that a product did not warn the consumer of the risks of the product. A manufacturing defect is that the product is not manufactured correctly. A design defect is that all manufactured products are inherently defective in design. The Consumer Guarantees Act 1993 (CGA 1993) provides a statutory framework to supplement the cause of action in negligence. The Act provides that “where goods are supplied to a consumer there is a guarantee that the goods are of acceptable quality.”<sup>154</sup> Section 7 provides that acceptable quality means that the goods are fit for all purposes for which the goods are commonly supplied, free from minor defects, safe, and durable.<sup>155</sup> For climate change, the issue will be safety. Those who manufacture, distribute or supply the product will be strongly positioned to argue that the product is safe. As Smith and Shearman note “plaintiffs... are not harmed by, for example, power plants and petrol-driven cars in their capacities as users of electricity or motor vehicles.”<sup>156</sup> Thus, harm to a third party not just to those who purchase the product should also be anticipated. As such, the question is of foreseeability.<sup>157</sup> Grossman clarifies that since “potential climate change plaintiffs’ harms are arguably a foreseeable

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<sup>151</sup> Kaminskaitė-Salters, above n 43, at 184.

<sup>152</sup> *American Electric Power v Connecticut* 564 US \_ (2011) at 10.

<sup>153</sup> *Korsinsky v EPA* 2005 US Dist LEXIS 21778 (SD NY 29 September 2005); Smith and Shearman, above n 126, at 86.

<sup>154</sup> Consumer Guarantees Act 1993, s 6(1).

<sup>155</sup> Consumer Guarantees Act 1993, s 7.

<sup>156</sup> Smith and Shearman, above n 126, at 88.

<sup>157</sup> Consumer Guarantees Act 1993, s 7.

result of placement of defendants' products in the marketplace, defendants might thus owe plaintiffs a duty of care."<sup>158</sup> It is arguable that power stations and cars are not required to produce greenhouse gases as an intrinsic feature given that renewable energies are available even though the question is economic. A design defect argument could be put that products must not emit unnecessary greenhouse gases.<sup>159</sup>

The failure to warn consumers about human induced climate change from products which emit greenhouse gases give plaintiffs a defective product argument.<sup>160</sup> Consumers may seek out carbon-neutral electricity sources, carbon-neutral cars, or sustainable public transport. Even if there are warnings about the potential for climate change, as Grossman notes, this is unlikely to lead to major changes in consumer behaviour because there are few real alternatives. Plaintiffs will have difficulty showing that the lack of provision of an adequate warning was the proximate cause of the injury. Kaminskaitė-Salters argues given that:<sup>161</sup>

affordable measures to counter product risks – such as warnings – would be of little or no benefit in the absence of a radical shift towards a low-[greenhouse gas] economy, the Courts would have to carry out the risk-utility analysis to examine whether more costly steps, such as the adoption of alternative designs... ought to have been [adopted].

With respect, such warnings may well be a small but significant step towards changing consumer behaviour. This argument is further developed in chapters four and six relating to business disclosure and energy efficiency.

## *IX Defences*

The defence of contributory negligence or voluntary assumption of risk buttress causation and policy arguments. For contributory negligence, the argument would be that the plaintiff's injuries were caused partly by the defendant's negligence but also partly by the plaintiff's own negligence for using products or services that emit greenhouse gases. The plaintiff, in such circumstances, would be able to show that one person's contribution to greenhouse gas emission is negligible compared to the defendant's emissions.<sup>162</sup> A stronger counter-argument associated with a plaintiff's voluntary assumption of risk is that there are few practical options available to consumers as alternatives, which would mean that the consumers acted reasonably.<sup>163</sup> Over time as climate change risks become defined with greater specificity, products and services that are carbon neutral will increasingly become available. For a voluntary assumption of risk defence, the plaintiff must be aware of the

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<sup>158</sup> Grossman "Warming Up", above n 88, at 49.

<sup>159</sup> David Hunter and James Salzman "Negligence in the Air: The Duty of Care in Climate Change Litigation" (2007) 155 U Pa L Rev 1741 at 1786.

<sup>160</sup> At 1787-1788.

<sup>161</sup> Kaminskaitė-Salters, above n 43, at 116.

<sup>162</sup> Smith and Shearman, above n 126, at 95.

<sup>163</sup> Grossman "Warming Up", above n 88, at 51.

potential harms that such products or services would cause and chose to assume that risk anyway.<sup>164</sup> Consent, naturally, involves a full knowledge of the facts. A consumer is unlikely to be fully appraised with climate change risks whereas a corporate defendant could be.

### *X Conclusion*

Regulating greenhouse gas emissions through tort law has, thus far, been “insurmountable.”<sup>165</sup> The science of climate change provides a complex link between greenhouse gas emissions and climate change which has not yet permeated tort law. If a climate change tort is fashioned, any court will have to consider applicable statute law such as environmental legislation. Although tort law should in theory provide a remedy for harm done through property damage, policy already correctly points away from injunctions. If a vulnerable plaintiff such as Tokelau which has suffered actual harm sued a greenhouse gas emitter defendant such as an oil company in public nuisance action, a court should tackle the intersection of greenhouse gases with property damage directly rather than dodging the problem with procedural arguments. This thesis argues that climate change presents an unreasonable interference with the comfort and convenience of the public. Even so, any court would have to consider the reasonableness of the defendant’s conduct and foreseeability. Similarly, the tort of negligence could be expanded to fit climate change. Arguments of causation are not scientific but legal impediments that can be moulded to fit a climate change tort. Toxic torts provide authority to recognising the scope of a tort which rejects defences of contributory negligence and voluntary assumption of risk. However, the judiciary may well prove impervious to proportional risk-based law reform.

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<sup>164</sup> Kaminskaitė-Salters, above n 43, at 101.

<sup>165</sup> Durrant “Tortious Liability”, above n 127, at 419.



## Chapter 3

### Environmental Land Use Planning Law

While the pursuit of a.... global agreement is admirable, it ignores [the reality] that national interest in competitive economic development will serve as an incentive for poor implementation of [greenhouse gas] reduction policies. [By contrast, Environmental Impact Assessment] helps to achieve international goals in the context of local participation and decision-making, as well as ensures that population growth and development do not erode or completely contradict ongoing and future strategies to address climate change.

Caleb Christopher<sup>1</sup>

#### *I Introduction*

With the common law put to one side, the role that environmental planning statutes have in regulating greenhouse gas emissions has been obscured by the prominence given to emissions trading schemes. In New Zealand, discharges of greenhouse gas emissions are not to be considered under the RMA 1991. Nonetheless, indirect greenhouse gas emissions are ostensibly not prohibited from evaluation and territorial authorities could in theory employ land use planning to regulate greenhouse gas emissions. In the mining context, nonetheless, existing mining privileges mean that the RMA 1991 is precluded from considering land use at all even though an interpretation is viable which would allow such privileges to be read consistently with the RMA 1991. With current mining permits, two arguments aim to divorce environmental planning from sustainable management of the atmosphere. The first argument is that there will be that emissions trading schemes supplant environmental planning completely. The second argument is that the activities engaged in will have little effect on the global greenhouse gas concentration. This chapter submits that the cumulative effects of greenhouse gas reductions should not be disregarded and emissions trading schemes should be read consistently with environmental planning legislation. This can be seen especially in case law which recognises the benefits of greenhouse gas reductions in high density urban planning. It is argued, therefore, that environmental planning statutes form the appreciable base upon which emissions trading schemes are able to function.

#### *II Resource Management Act 1991*

In terms of greenhouse gas emissions, the RMA 1991 would seem particularly suitable to regulate such emissions. Its purpose is sustainable management to sustain “the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations.”<sup>2</sup> Section 15(2) prohibits discharging any “contaminant into air... from (a) any place; or (b) any other source, whether moveable or

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<sup>1</sup> Caleb Christopher “Success by a Thousand Cuts: The Use of Environmental Impact Assessment in Addressing Climate Change” (2008) 9 Vt J Env'tl L 549 at 607.

<sup>2</sup> RMA 1991, s 5.

not.”<sup>3</sup> Section 17 provides a broad unenforceable duty to “avoid, remedy, or mitigate any adverse effect on the environment.”<sup>4</sup> The definition of contaminant includes any substance or energy or heat which when discharged “changes or is likely to change the physical, chemical, or biological condition of the land or air onto or into which it is discharged.”<sup>5</sup> Environment is defined expansively which would include the atmosphere under “ecosystems and their constituent parts” as well as a “natural and physical” resource.<sup>6</sup> Likewise, the definition of effect includes “any positive or adverse effect”, “any temporary or permanent effect”, “any past, present, future effect”, “any cumulative effect which arises over time or in combination with other effects”, “any potential effect of high probability”, and “any potential effect of low probability which has a high potential impact.”<sup>7</sup> Hence, greenhouse gas emissions would seem to be *prima facie* caught by the RMA 1991 unless otherwise authorised.

Prior to 2004, the RMA 1991 was to regulate greenhouse gas emissions. For instance, the Huntly gas/coal fired power station resource consent involves periodic reviews of the “best practicable option” for reducing emissions.<sup>8</sup> The council recorded that the government would be better to promulgate a consistent national policy.<sup>9</sup> Similarly, the Stratford gas fired power station was conditioned to “take such steps as are necessary and effective to avoid, or remedy or mitigate the effects of the additional amount of carbon dioxide being discharged as a result of” the project.<sup>10</sup> Additionally, the Southdown combined cycle power station had a best practicable option condition attached to its resource consent.<sup>11</sup>

Twice in 2002, this ad hoc approach to greenhouse gas mitigation came to a head. In *Environmental Defence Society v Auckland Regional Council*, the Environment Court found that the “greenhouse effect and the possibility of climate change [were] a matter of serious concern.”<sup>12</sup> Nevertheless, no conditions on the resource consent were imposed as the RMA 1991 would risk “inconsistent treatment” through “implementing and managing requirements for different regions.”<sup>13</sup> It accepted that “cumulative anthropogenic emissions of carbon dioxide on a global basis contribute to climate change.”<sup>14</sup> Although unquantifiable, “the prognosis is sufficiently serious... to find that the proposed emissions from [the project] will result, in a cumulative way, in an adverse effect of some consequence.”<sup>15</sup> Nonetheless, the

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<sup>3</sup> RMA 1991, s 15(2).

<sup>4</sup> RMA 1991, s 17.

<sup>5</sup> RMA 1991, s 2, definition of “contaminant”.

<sup>6</sup> RMA 1991, s 2, definition of “environment”.

<sup>7</sup> RMA 1991, s 3.

<sup>8</sup> Robin Brasell “New Zealand’s Net Carbon Dioxide Emission Stabilisation Target” (1996) 3(3) Agenda 329 at 334-335.

<sup>9</sup> At 335.

<sup>10</sup> *Environmental Defence Society v Auckland Regional Council* [2002] NZRMA 492 (EnvC) at [19].

<sup>11</sup> Brasell, above n 8, at 336.

<sup>12</sup> *Environmental Defence Society v Auckland Regional Council* [2002] NZRMA 492 (EnvC) at [65].

<sup>13</sup> At [18].

<sup>14</sup> At [88].

<sup>15</sup> At [88].

court had “considerable disquiet about the efficacy, appropriateness and reasonableness of a condition [requiring mitigation].”<sup>16</sup> This was “engendered by [the need to treat] greenhouse gas emission[s] as an international issue” as well as ensuring that at a “national level... consistency of approach... guarantee[d] an efficiency compatible with achieving best social, environmental and economic outcome.”<sup>17</sup>

Comparable comments in *Environmental Defence Society v Taranaki Regional Council* reiterated that greenhouse gas emissions remained applicable as a cumulative effect under the RMA 1991.<sup>18</sup> The court “manifest[ed] a need for caution to ensure a consistency of approach at the very least nationally.”<sup>19</sup> To “disregard such a portent [would] be foolhardy.”<sup>20</sup> The court cautiously refused to add a carbon offsetting condition to the resource consent because to do so would involve a “quintessential policy” decision.<sup>21</sup> It was difficult “to identify any definable effects attributable to the carbon dioxide discharge from the application site, locally[,] regionally or globally” as the emissions “emitted annually by the development is about 1 millionth of the total annual global emissions.”<sup>22</sup> Nevertheless, the court was sympathetic to the contention that “every small contribution makes a difference.”<sup>23</sup> It would have surely accepted the subsequent statement by Judge Thompson in *Todd Energy v Taranaki Regional Council* that “[t]here is an obvious danger in blindly adopting the view that... a little more won’t make much difference”<sup>24</sup> This is because the “accumulation of individually insignificant increments can [potentially] become significant.”<sup>25</sup>

The Resource Management (Energy and Climate Change) Amendment Act 2004 guided a national approach. This introduced a definition of climate change as “a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable periods.”<sup>26</sup> Additionally, this Act defines renewable energy as “energy produced from solar, wind, hydro, geothermal, biomass, tidal, wave and ocean current sources.”<sup>27</sup> It set out to give greater weight to the value of energy efficiency regardless of source, to consider the effects of climate change such as an increase in sea level rise, to remove climate change as a factor to be taken into account for industrial discharges of greenhouse gases, as well to

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<sup>16</sup> At [88].

<sup>17</sup> At [88].

<sup>18</sup> *Environmental Defence Society v Taranaki Regional Council* EnvC New Plymouth A 184/2002, 6 September 2002 at [24].

<sup>19</sup> At [11].

<sup>20</sup> At [11].

<sup>21</sup> At [44].

<sup>22</sup> At [19].

<sup>23</sup> At [22].

<sup>24</sup> *Todd Energy Ltd v Taranaki Regional Council* EnvC Wellington W 101/05 7 December 2005 at [47].

<sup>25</sup> At [47].

<sup>26</sup> RMA 1991, s 2, definition of “climate change”.

<sup>27</sup> RMA 1991, s 2, definition of “renewable energy”.

look to the benefits to be derived from the use and development of renewable energy.<sup>28</sup> These were inserted in ss 7(ba), (i) and (j) of the RMA 1991 respectively. Thus, there was to be national direction as to “legally relevant guidance to take climate change effects in the benefits of renewable energy into consideration.”<sup>29</sup>

Sections 70A, 70B, 104E, and 104F of the RMA 1991 were introduced to clarify how regional councils were to manage greenhouse gas emissions. Section 70A prescribes that a regional council when making a rule to control an air discharge of greenhouse gases “must not have regard to the effects of such a discharge on climate change except to the extent that the use and development of renewable energy enables a reduction in the discharge into air of greenhouse gases either (a) in absolute terms; or (b) relative to the use and development of non-renewable energy.”<sup>30</sup> Section 70B provides that if a national environmental standard is made to control the effects of such discharges on climate change that a regional council can make appropriate rules. Section 104E states that when considering a discharge of greenhouse gases, a consent authority must not consider the discharge except in relation to the benefits accrued for renewable energy. Section 104F provides the process by which a national environmental standard on greenhouse gases is to be considered in an application.

These sections have subsequently come under extensive purposive and textual analysis.<sup>31</sup> On appeal from the Environment Court in *Greenpeace New Zealand v Northland Regional Council*,<sup>32</sup> Greenpeace in the High Court argued that s 104E:<sup>33</sup>

applies to all resource consent applications that would otherwise [constitute a discharge] regardless of whether such applications are made in respect of renewable or non-renewable energy projects [as] there [was] no basis in the exception to s 104E justifying it to applications for renewable energy projects.

Section 7(j) which requires the consideration of the benefits of renewable energy “remained in full force and decision-makers must consider all benefits of renewable energy” including a comparison with non-renewable energy.<sup>34</sup> In *Genesis Power v Greenpeace New Zealand*, the Court of Appeal found that greenhouse gases “should be subject to national, and

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<sup>28</sup> Vernon Rive “New Zealand Climate Change Regulation” in Alastair Cameron (ed) *Climate Change Law and Policy in New Zealand* (Lexis Nexis, Wellington, 2011) 165 at 181.

<sup>29</sup> At 181; Resource Management (Energy and Climate Change) Amendment Bill 2003, Explanatory Note.

<sup>30</sup> RMA 1991, s 70A.

<sup>31</sup> Judge Bollard “Climate Change Issues from the Perspective of the Environment Court” (2008) 7(11) BRMB 127; Judge Newhook “Climate Change and the RMA” (paper presented to the Annual Resource Management Law Association of New Zealand Conference, 26 September 2008); Matt Spiro “*Greenpeace New Zealand Incorporated v Genesis Power Ltd*” (2009) 8(1) BRMB 11; Ed Steane “*Genesis Power Ltd v Greenpeace New Zealand Inc*” (2008) 7(9) BRMB 104; Ceri Warnock “Greenhouse Gases and Climate Change – Relevance to Discharge Permit Application” (2006) 6(16) BRMB 191; Edward Willis “The Interpretation of Environmental Legislation in New Zealand” (2010) 14 NZJEL 135.

<sup>32</sup> *Greenpeace New Zealand Incorporated v Northland Regional Council* EnvC Auckland A 94/2006, 11 July 2006.

<sup>33</sup> *Greenpeace New Zealand Incorporated v Northland Regional Council* [2007] NZRMA 87 (HC) at [3].

<sup>34</sup> At [17].

not regional, regulation and control.”<sup>35</sup> As such, Greenpeace’s approach involved a “duplication of effort between national and regional government which the legislature has sought to eliminate.”<sup>36</sup> The consequence of the alternative interpretation would “allow the exception to swallow the prohibition.”<sup>37</sup> Moreover, no “demonstrative linkage [existed] between [greenhouse gas] emissions associated with any particular project and climate change generally.”<sup>38</sup>

The majority in the Supreme Court accepted the Court of Appeal’s approach. Wilson J accepted that the “language of the sections [demonstrates] a clear implicit premise that the exception is confined” to renewable energy projects.<sup>39</sup> His Honour argued that “the prohibition and the exception must be given practical effect [to only apply to renewable energy projects because otherwise] a proposal which came within the prohibition would in all probability also come within the exception.”<sup>40</sup> Hence, “the exception within [s104E] applies only to applications involving the use and development of renewable energy.”<sup>41</sup> In the minority, Elias CJ argued that such reading was “not consistent with the wider statutory context.”<sup>42</sup> Her Honour saw that in “the absence of national environmental standards... the consent authority must consider applications relating to the discharge of greenhouse gases.”<sup>43</sup> Placing emphasis on s 7(j), the disadvantages of non-renewable energy needed to be considered as “the reverse side of the same coin.”<sup>44</sup>

Although the outcome of the majority is persuasive, the reasoning is too broad. Wilson J stated that “any application being considered must necessarily involve a renewable source; if it does not, there is no possibility of reducing the discharge of greenhouse gases either absolutely or relatively.”<sup>45</sup> Such reasoning is problematic. Section 104E requires that there be an application for a discharge permit. With many renewable resources such as a wind farm, applications to develop renewable energy do not directly discharge greenhouse gases. Therefore, non-greenhouse gas emitting renewable energy projects should be solely considered in terms of s 7(j). The statement made by Wilson J also ignores ss 7(b) and (ba) as to efficiency of resources. The conversion from a highly inefficient coal plant to a more modern efficient gas plant is an exemplar. Greenhouse gas emissions of non-renewable resources can be reduced absolutely (carbon sequestration) or relatively (change in technology for greater efficiency). With this reasoning, s 104E must apply to the narrow band

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<sup>35</sup> *Genesis Power Ltd v Greenpeace New Zealand Incorporated* [2008] NZRMA 125 (CA) at [12].

<sup>36</sup> At [40].

<sup>37</sup> At [44].

<sup>38</sup> At [17].

<sup>39</sup> *Genesis Power Ltd v Greenpeace New Zealand Incorporated* [2009] 1 NZLR 730 (SC) at [52].

<sup>40</sup> At [53].

<sup>41</sup> At [65].

<sup>42</sup> At [11].

<sup>43</sup> At [24].

<sup>44</sup> At [11].

<sup>45</sup> At [53].

of geothermal or biomass plants which discharge greenhouse gases but are renewable in nature rather than deriving from a non-renewable resource.

### *III Indirect Greenhouse Gas Emissions and Mining*

The 2004 Amendment Act leaves the question open as to the extent to which territorial authorities control greenhouse gas emissions through land use changes. Thus, local authorities are required to “plan for the effects of climate change” but “not to consider the effects on climate change of discharges into air of greenhouse gases.”<sup>46</sup> Rive has found a legal gap where “the potential effects on climate change of land use proposals (not involving applications relating to the discharge of [greenhouse gas] emissions to air)” could be considered.<sup>47</sup> Taken to its logical conclusion, the obvious intersection of land use and greenhouse gas emissions is the prospecting, exploration and mining of fossil fuels. Litigating greenhouse gases at the coal mine, petroleum or gas field has seen light discussion in New Zealand<sup>48</sup> despite extended discussion in the Australia,<sup>49</sup> Canada,<sup>50</sup> and the United States.<sup>51</sup>

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<sup>46</sup> Resource Management (Energy and Climate Change) Amendment Act 2004, s 3.

<sup>47</sup> Rive, above n 28, at 184.

<sup>48</sup> Ed Steane and Teresa Weeks “Climate Change and the RMA: Implications of *Greenpeace New Zealand Inc v Genesis Power Ltd*” (2009) April RMJ 1; Elisabeth Welson and Michelle van Kampen “Greenhouse Gas Discharges – A Matter of National Interest” (2009) 28 ARELJ 121.

<sup>49</sup> *Australian Conservation Foundation v Latrobe City Council* (2004) 140 LGERA 100 (VCAT); *Wildlife Preservation Society of Queensland Proserpine / Whitsunday Branch Inc v Minister for Environment and Heritage* (2006) 232 ALR 510 (FCA); *Gray v Minister for Planning* (2006) 152 LGERA 258 (NSWLEC); *Anvil Hill Project Watch Association Inc v Minister for Environment and Water Resources* (2008) 166 FCR 54 (FCAFC); *Queensland Conservation Council Inc v Xstrata Coal Queensland Pty Ltd* (2007) 155 LGERA 322 (QCA); *Re Xstrata Coal Queensland Pty Ltd* [2007] QLRT 33; Charles Berger “Hazelwood: A New Lease of Life for a Greenhouse Dinosaur” in Tim Bonyhady and Peter Christoff (ed) *Climate Law in Australia* (Sydney, Federation Press, 2007) 161; Nicola Durrant *Legal Responses to Climate Change* (Federation Press, Sydney, 2010); David Farrier “The Limits of Judicial Review: Anvil Hill in the Land and Environment Court” in Tim Bonyhady and Peter Christoff (ed) *Climate Law in Australia* (Sydney, Federation Press, 2007) 189; Douglas Fisher “The Statutory Relevance of Greenhouse Gas Emissions in Environmental Regulation” (2007) 24 EPLJ 210; Meredith Gibbs “Considering Cumulative and Indirect Greenhouse Gas Impacts: How Far Should Decision Makers Go?” in Wayne Gumley and Trevor Daya-Winterbottom (ed) *Climate Change Law* (Thompson Reuters, Sydney, 2009) 123; David Hodgkinson and Renee Garner *Global Climate Change: Australian Law and Policy* (LexisNexis Butterworths, Chatswood, 2008); Laura Horn “Justice for Future Generations in Australia and Climate Change Law” in Wayne Gumley and Trevor Daya-Winterbottom (ed) *Climate Change Law* (Thompson Reuters, Sydney, 2009) 273; Rosemary Lyster “Chasing Down the Climate Change Footprint of the Private and Public Sectors: Forces Converge” (2007) 24 EPLJ 281; Lesley McAllister “Litigating Climate Change at the Coal Mine” in William Burns and Hari Osofsky (ed) *Adjudicating Climate Change: State, National and International Approaches* (Cambridge University Press, New York, 2009) 48; Chris McGrath “Regulating Greenhouse Gas Emissions from Australian Coal Mines” in Wayne Gumley and Trevor Daya-Winterbottom (ed) *Climate Change Law* (Thompson Reuters, Sydney, 2009) 207; Chris McGrath “The Xstrata Case: Phyrhic Victory or Harbinger?” in Tim Bonyhady and Peter Christoff (ed) *Climate Law in Australia* (Sydney, Federation Press, 2007) 214; Jacqueline Peel “The Role of Climate Change Litigation in Australia’s Response to Global Warming” (2007) 24 EPLJ 90; Anna Rose “*Gray v Minister for Planning*: The Rising Tide of Climate Change Litigation in Australia” (2007) 29 SydLR 275; Kirsty Ruddock “The Bowen Basin Coal Mines Case: Climate Law in the Federal Court” in Tim Bonyhady and Peter Christoff (ed) *Climate Law in Australia* (Sydney, Federation Press, 2007) 173.

<sup>50</sup> *Pembina Institute for Appropriate Development v Canada (Attorney-General)* (2008) FC 302; Nathalie Chalifour “A (Pre)Cautionary Tale about the Kearsley Oil Sands Decision: The Significance of *Pembina Institute for Appropriate Development et al v Canada (Attorney-General)* for the Future of Environment Assessment”

The source of all fossil fuel greenhouse emissions would seem the ultimate place for an extended discussion of an assessment of environment effects of greenhouse gas emissions.

Mining in New Zealand is governed by the Crown Minerals Act 1991 (CMA 1991) and existing privileges. The CMA 1991 is to “provide a neutral regime which neither promotes nor discourages mining relative to other activities.”<sup>52</sup> The Act’s purpose is to “restate and reform the law relating to the management of Crown-owned minerals.”<sup>53</sup> When legal ownership of a mineral is vested in the Crown,<sup>54</sup> the CMA 1991 regulates the prospecting, exploration, or mining of such minerals. The Act creates a system where a Crown Minister has the function of preparing minerals programmes which provide for a management framework and system of allocation.<sup>55</sup> These provide for “(a) [t]he efficient allocation of rights in respect of Crown owned minerals; and (b) [t]he obtaining by the Crown of a fair financial return from its minerals.”<sup>56</sup> The three types of mineral permits are for prospecting, exploration and mining. The mining permit allows the holder to “take, win, or extract, by whatever means a mineral existing in its natural state in land, or a chemical substance from that mineral, for the purpose of obtaining the mineral or chemical substance.”<sup>57</sup> While access to land is discussed at length in the Act, there is also protected land included in schedule 4 of the CMA 1991.

#### A Existing Mining Privileges

Within the CMA 1991, there is a major exemption for existing privileges. Section 9 of the CMA 1991 provides that “[c]ompliance with this Act does not remove the need to comply with all other applicable Acts, regulations, bylaws, and rules of law.”<sup>58</sup> This section has been read down because s 107 of the CMA 1991 means that “every existing privilege shall continue to have effect after the date of commencement of this Act” so that “the holder of the privilege continue[s] to have the same statutory rights as the holder would have had if this

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(2009) 5(2) McGill Int’l J Sust Dev L & Pol’y 251; Toby Kruger “Canadian Environmental Assessment Act and Global Climate Change: Rethinking Significance” (2009) 47 Alta L Rev 161.

<sup>51</sup> *WildEarth Guardians v United States Forest Service* 2010 US Dist LEXIS 32256 (D Colo, 1 April 2010); Dave Owen “Climate Change and Environmental Assessment Law” (2008) 33 Colum J Envtl L 57; Amy Stein “Climate Change under the NEPA: Avoiding Cursory Consideration of Greenhouse Gases” (2010) 81(2) U Colo L Rev 473; United States Government Accountability Office, “Onshore Oil and Gas: BLM’s Management of Public Protests to Its Lease Sales Needs Improvement” (30 July 2010) < www.gao.gov>.

<sup>52</sup> Resource Management Bill 1989/224-1 as cited by Rob Fisher and Michelle van Kampden “Mining and Petroleum” in Derek Nolan (ed) *Environmental and Resource Management Law* (4<sup>th</sup> ed, Lexis Nexis, Wellington, 2011) at 478.

<sup>53</sup> CMA 1991, long title.

<sup>54</sup> CMA 1991, s 10.

<sup>55</sup> Ministry of Economic Development “Minerals Programme for Petroleum” (1 January 2005) New Zealand Petroleum and Minerals <www.nzpam.govt.nz>; Ministry of Economic Development “Minerals Programme for Petroleum (2005) Amendment (Priority in Time) Removal Order” (25 January 2012) New Zealand Petroleum and Minerals <www.nzpam.govt.nz>; Ministry of Economic Development “Minerals Programme for Minerals (Excluding Petroleum)” (1 February 2008) New Zealand Petroleum and Minerals <www.nzpam.govt.nz>.

<sup>56</sup> CMA 1991, s 12.

<sup>57</sup> CMA 1991, s 2, definition of “mining”.

<sup>58</sup> CMA 1991, s 9.

Act and the [RMA 1991] had not been enacted” and “the holder of the privilege continue[s] to have the same statutory obligations as the holder would have had if this Act had not been enacted.”<sup>59</sup> This means that “where any consent in respect of any such existing privilege which, but for this section, would be required and would need to be sought under the [RMA 1991], then the [RMA 1991] shall apply.”<sup>60</sup> The Parliamentary Commissioner for the Environment (PCE) has called the associated environmental conditions of these existing mining licences as “weak, outdated, contradictory, unenforceable, or absent altogether.”<sup>61</sup> As at October 2009, there were 111 licences granted under the old legislation – 58 under the Coal Mines Act 1979 – the last of which is to expire in 2062 for an opencast lignite pit at New Vale in Southland.<sup>62</sup>

This dual system of regulation means the applicability of the RMA 1991 is thwarted. Fortunately, the Privy Council has found that the term of an existing mining licence was not a condition of the licence for the purposes of a variation under s 103D(3) of the Mining Act 1971 so that a change in the term of an existing mining licence requires a new mining permit altogether under the CMA 1991 with RMA 1991 controls.<sup>63</sup> Despite this, a corpus of law has developed where some enforcement provisions of the RMA 1991 remain inapplicable because the CMA 1991 has been interpreted so that the holder of an existing privilege does not require RMA 1991 land use consent. This principle has been held to apply in the Environment Court in *Opoutere Ratepayers v Heritage Mining* (the effect of s 107 of the CMA 1991 declared),<sup>64</sup> *Otago Heritage Protection Group v Macraes Mining* (an unsuccessful attempt to obtain an enforcement order to prevent mining of old mine workings of heritage value),<sup>65</sup> *Terry v West Coast Regional Council* (a regional council unable to obtain an enforcement order relating to gold mining)<sup>66</sup> as well as accepted by the High Court in *Powelliphanta Augustus v Solid Energy* (s 17 of the RMA 1991 did not apply to the protection of snails under an existing licence).<sup>67</sup> This premise is based on *Stewart v Grey County Council*, which was decided in 1978.<sup>68</sup>

*Stewart v Grey County Council* held that the rights of a gold-dredging company were not affected by the Town and Country Planning Act 1953. The gold-dredging company wished to mine Mr Stewart’s land. An Order in Council declared the land to be open for

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<sup>59</sup> CMA 1991, s 107.

<sup>60</sup> CMA 1991, s 107(3).

<sup>61</sup> Parliamentary Commissioner for the Environment *Stockton Revisited: The Mine and the Regulatory Minefield* (Wellington, 2009) at 46.

<sup>62</sup> At 39-40.

<sup>63</sup> *Glenharrow Holdings Ltd v Attorney-General* [2005] 2 NZLR 289 (PC).

<sup>64</sup> *Opoutere Ratepayers and Residents Association Inc v Heritage Mining NL* PT Decision Auckland A 33/95 20 April 1995.

<sup>65</sup> *Otago Heritage Protection Group Incorporated v Macraes Mining Company Limited* EnvC Christchurch C36/98 9 April 1998.

<sup>66</sup> *Terry v West Coast Regional Council* EnvC Christchurch C147/2001 29 August 2001.

<sup>67</sup> *Powelliphanta Augustus Inc v Solid Energy New Zealand Ltd* (2007) 13 ELRNZ 200 (HC).

<sup>68</sup> *Stewart v Grey County Council* [1978] 2 NZLR 577 (CA).



mining as if it were Crown land and the gold-dredging company obtained a mining licence. The mining privilege granted gave the company “the exclusive right to occupy the appellant’s freehold land for a ten years for the purposes of mining gold and silver” under the Mining Act 1971.<sup>69</sup> Richardson J held:<sup>70</sup>

[I]t would be surprising if the Minister, having determined... that it was in the national interest for land to be declared open for mining as if it were Crown land... the Town Planning legislation could then be invoked to negate that decision... [T]he Mining Act 1971 was intended to be an exclusive code in respect of the use of land for mining purposes under mining licences granted under that Act.

Thus, the Mining Act 1971 provided “a clear and detailed statutory code determining and controlling... the use and development of land for mining purposes.”<sup>71</sup> It “pre-empted the field [of land use].”<sup>72</sup> Richardson J declined to accept the submission of the applicability of Australian case law because there was an “express statutory provision making Crown land subject to the [Australian] planning legislation.”<sup>73</sup> On the facts, it was found to “be inconsistent with the scheme of the [1971] Act to allow territorial authorities, in instituting and implementing land use controls, to derogate from *the rights and obligations* in that respect provided for in the [1971] Act.”<sup>74</sup> An amendment to the 1971 Act in 1981 codified the decision in *Stewart v Grey County Council*.<sup>75</sup>

There are several reasons for criticising this expanded use of *Stewart v Grey County Council*. The facts in *Stewart* involved access to private land rather than use of Crown land. *Stewart* also reads down s 9 of the CMA 1991 which provides that other Acts are not affected by the CMA 1991. In addition, an interpretation of s 107 of the CMA 1991 which states that the RMA 1991 as well as the CMA 1991 do not apply to existing statutory rights but that only the CMA 1991 does not impose statutory obligations should be given effect. This would mean that the RMA 1991 still applies to statutory obligations. Section 107(3) of the CMA 1991 is a mere acknowledgement that any consent required under previous legislation is still required to get consent under the RMA 1991. Moreover, *Stewart* itself was based on “material differences between the [New South Wales] legislation... and the New Zealand legislation.”<sup>76</sup> The CMA 1991 could not have intended that existing privileges would hold a free rein over those who were subject to RMA 1991 controls. Existing privileges were to be integrated with RMA 1991 controls. The CMA 1991 itself creates a code which needs realisation. Lastly, s 108 of the CMA 1991 refers to s 31 of the RMA 1991 which allows territorial authorities to establish, implement, and review the “methods to achieve integrated

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<sup>69</sup> At 578.

<sup>70</sup> At 584.

<sup>71</sup> At 583.

<sup>72</sup> At 584.

<sup>73</sup> At 585.

<sup>74</sup> At 585.

<sup>75</sup> Mining Act 1971, s 4A.

<sup>76</sup> *Stewart v Grey County Council* [1978] 2 NZLR 577 (CA) at 584.

management of the effects of the use, development, or protection of land.”<sup>77</sup> If the existing privileges enabled by the CMA 1991 were not to apply to land use it would be superfluous to include such a provision in s 108.

Despite these observations, the Courts adhere to *Stewart*. In *Powelliphanta Augustus v Solid Energy* numerous declarations and enforcement orders were sought under s 17 of the RMA 1991 against Solid Energy to prevent the mining of the Mt Augustus ridgeline (part of the Stockton open cast coal mine) pursuant to a coal mining licence under the Coal Mines Act 1979 in order to protect the endangered Powelliphanta Augustus snail.<sup>78</sup> Section 17 provides a broad unenforceable duty where “[e]very person has a duty to avoid, remedy, or mitigate any adverse effect on the environment... whether or not the activity is in accordance with” the RMA 1991’s subsidiary regulations. Panckhurst J reasoned that existing mining privileges were not subject to RMA 1991 land use requirements.<sup>79</sup> His Honour held that “s 17 casts a duty within the context of the RMA. Where an activity is not regulated and controlled under the RMA, s 17 has no part to play.”<sup>80</sup> Such reasoning is inconsistent with *Zdrahal v Wellington City Council* where an abatement notice was issued because of swastikas painted on the outside wall of a house.<sup>81</sup> If s 17 is construed narrowly to only those activities strictly involving RMA 1991 regulation, such a land use would not strictly breach the RMA 1991. Section 17 is to be a broad duty and to narrow it renders s 17 redundant. Hence, the awkward position is left that Solid Energy is entitled to use s 17 of the RMA 1991 to halt a mass protest on adjacent land to the Stockton mine but Save Happy Valley Coalition is unable to use s 17 because the mining licence granted exists under the Coal Mines Act 1979.

Little mention in these decisions concerns s 10 of the RMA 1991 that protects certain existing uses in land even though seemingly directly applicable. The reason that an imprudent interpretation of s 107 of the CMA 1991 is facilitated is because s 10 means that if an activity has been discontinued for more than 12 months then any existing privilege is abandoned. With existing privileges existing up until the next 50 years, it is conceivable that a 12 month period break from land use activities could have occurred jeopardising the existing mining privilege. For the PCE, the existing mining privilege regulatory regime “is complex, obscure and out of date.”<sup>82</sup> Such licences have lengthy terms and “public opinion on what is environmentally acceptable has changed significantly.”<sup>83</sup> There is a fear that “not updating environmental conditions in a mining licence may expose the Crown the risk of the site being abandoned in a poor state.”<sup>84</sup> Any “ensuing clean-up [will be] done at taxpayer and ratepayer

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<sup>77</sup> RMA 1991, s 31(1)(a).

<sup>78</sup> *Powelliphanta Augustus Inc v Solid Energy New Zealand Ltd* (2007) 13 ELRNZ 200 (HC).

<sup>79</sup> At [50].

<sup>80</sup> At [61].

<sup>81</sup> *Zdrahal v Wellington City Council* [1995] 1 NZLR 700 (HC).

<sup>82</sup> PCE *Stockton*, above n 61, at 37.

<sup>83</sup> At 48.

<sup>84</sup> At 51.

expense.”<sup>85</sup> For instance, the Tui mine abandonment in Waikato will cost over \$18 million to fix.<sup>86</sup>

## B Modern Mining Permits

In direct contrast with existing mining privileges, the CMA 1991 and the RMA 1991 work collaboratively to regulate modern mining permits. In *Gebbie v Banks Peninsula District Council*, Mr Gebbie sought to reopen a quarry for stonemasonry purposes and argued that the right to mine minerals is a common law right not abrogated by the RMA 1991.<sup>87</sup> Panckhurst J reasoned that excluding minerals from s 5 RMA 1991 was recognition that “minerals being a finite resource cannot be sustained for future generations.”<sup>88</sup> For Panckhurst J, “the very process of mining minerals must be carried out in a sustainable way, that is the disturbance of soil, the creation of dust and noise, the use of water [etcetera].”<sup>89</sup> Conceptually, therefore, although the rate of mineral extraction is uncontrolled, there is still to be sustainable management of the atmosphere. Elsewhere it has been argued that the question involves “the side effects which the combustion of those minerals cause on a global and regional basis, therefore the exclusion of minerals in [s 5(2)(b) of the RMA 1991] has no bearing on the issues.”<sup>90</sup> Panckhurst J declined to apply *Stewart v Grey County Council* because as the “minerals were privately owned and a privilege was not required, then normal land use planning considerations [remain] relevant.”<sup>91</sup> Section 9 of the CMA 1991 was read prospectively so that “the modern position is that those who hold permits to mine Crown-owned minerals are bound by the [RMA 1991] and must, for example, obtain consents for the use of land and water in order to exercise their right to mine.”<sup>92</sup>

## C Overseas Authority

In Australia, there is a requirement to consider greenhouse gas emissions from the coal mine. For the Hazelwood coal mine and the Newlands coal mine, such a criterion proved so controversial that the Crown intervened to enable the operation of the coal mines in question.<sup>93</sup> In *Gray v Minster for Planning*, the applicant argued that there had been an

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<sup>85</sup> At 51.

<sup>86</sup> Waikato Regional Council “Tui Mine Remediation Project” (2011) <[www.waikatoregion.govt.nz/projects/Tui-mine](http://www.waikatoregion.govt.nz/projects/Tui-mine)>.

<sup>87</sup> *Gebbie v Banks Peninsula District Council* [2000] NZRMA 553 (HC).

<sup>88</sup> At [24].

<sup>89</sup> At [25].

<sup>90</sup> *Canterbury Regional Council v Waimakariri District Council* [2002] NZRMA 208 (EnvC) at [125].

<sup>91</sup> *Gebbie v Banks Peninsula District Council* [2000] NZRMA 553 (HC) at [31].

<sup>92</sup> At [35].

<sup>93</sup> For Hazelwood: *Australian Conservation Foundation v Latrobe City Council* (2004) 140 LGERA 100 (VCAT); Berger, above n 49; Andrew Komesaroff and Fiona Rosen “Victoria Developments - Hazelwood Power Station Greenhouse Gas Reduction Deed” (2005) 24(3) ARELJ 280; For Newlands: *Queensland Conservation Council Inc v Xstrata Coal Queensland Pty Ltd* (2007) 155 LGERA 322 (QCA); *Re Xstrata Coal Queensland Pty Ltd* [2007] QLRT 33; Mining and Other Legislation Amendment Act 2007 (Qld). See McGrath “The Xstrata Case”, above n 49.

inadequate greenhouse gas assessment of the Anvil Hill coal mine.<sup>94</sup> The Director-General, so it was argued, failed to account for the greenhouse gases arising from the inevitable burning of the coal by third parties. The proposal's environmental assessment had only factored in greenhouse gases under the mine's direct control. Applying ecological sustainable development, Pain J held that the Director-General needed to consider that "climate change/global warming is a global environmental issue to which the coal won from the project will contribute."<sup>95</sup> This required an analysis of the intergenerational and precautionary principles.<sup>96</sup> This decision can be contrasted with Dowsett J in *Wildlife Preservation Society of Queensland Proserpine v Minister for the Environment and Heritage*, who was:<sup>97</sup>

far from satisfied that the burning of coal at some unidentified place in the world, the production of greenhouse gases from such combustion, its contribution towards global warming and the impact of global warming upon [coral reefs] can be so described [as a significant impact]... The applicant's case is really based upon the assertion that greenhouse gas emission is bad, and that the Australian government should do whatever it can to stop it including, one assumes, banning new coal mines in Australia.

In Canada, *Pembina Institute v Canada (Attorney-General)* involved a judicial review application of a joint review panel that assessed the environmental impacts of the Kearl oil sands project under the Canadian Environmental Assessment Act 1992.<sup>98</sup> Oil sands comprise some 140,000 square kilometres in north-eastern Alberta and produce over 1 million barrels of oil every day.<sup>99</sup> In addition, the tailing ponds which contain residual sand, bitumen, and related contaminants threaten groundwater, biodiversity, soil and surface water such as rivers. The joint review panel concluded that the particular Kearl oil sands project was not likely to cause significant adverse environmental effects. Tremblay-Lamer J held that the panel had erred through an insufficient explanation as to how the projected greenhouse gas emissions were insignificant. There needed to be "cogent articulation of the rationale basis for conclusions reached."<sup>100</sup> The panel had short circuited the decision making process. It "erred in law by failing to provide reasoned basis for its conclusion."<sup>101</sup> The panel went on to reaffirm its decision. However, as Chalifour observes "it remains difficult to see how... the release of 3.7 million tonnes of greenhouse gases per year [were rendered] insignificant."<sup>102</sup>

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<sup>94</sup> *Gray v Minister for Planning* (2006) 152 LGERA 258 (NSWLEC).

<sup>95</sup> At [155].

<sup>96</sup> At [126].

<sup>97</sup> *Wildlife Preservation Society of Queensland Proserpine / Whitsunday Branch Inc v Minister for Environment and Heritage* (2006) 232 ALR 510 (FCA) at [72].

<sup>98</sup> *Pembina Institute for Appropriate Development v Canada (Attorney-General)* (2008) FC 302.

<sup>99</sup> Chalifour, above n 50, at 257.

<sup>100</sup> *Pembina Institute for Appropriate Development v Canada (Attorney-General)* (2008) FC 302 at [75].

<sup>101</sup> At [79].

<sup>102</sup> Chalifour, above n 50, at 264.

There is an argument that the 2004 amendment only regulated direct discharges of greenhouse gases and therefore did not displace the consideration of indirect discharges. In this light, s 7(i) of the RMA 1991 which requires particular regard to be had to “the effects of climate change” is potentially ambiguous.<sup>103</sup> Is there to be sustainable management of “the effects of climate change” or are “the effects of climate change” to be sustainably managed? The former concerns mitigation and adaptation whereas the latter focuses solely on adaptation to the exclusion of mitigation. As Manning and Reisinger suggest the “effects of climate change can and need to be managed by a dual strategy: by adapting to [inevitable] impacts [and] reducing emissions” to avoid severe impacts.<sup>104</sup> Rive postulates that the legislature has seen mitigation (effects on climate change)<sup>105</sup> and the (effects of climate change)<sup>106</sup> as opposing objectives. This appears to have been the intention of the 2004 amendment<sup>107</sup> as interpreted by the Ministry of the Environment.<sup>108</sup> It is not the approach always taken by the judiciary.<sup>109</sup> In *Genesis Power v Franklin District Council*, double counting occurs when the court recognised “the importance of the use and development of renewable energy and the need to address climate change, both of which are key elements in the proposed wind farm.”<sup>110</sup> This can be contrasted with Wilson J in *Genesis Power v Greenpeace* who found the 2004 amendments “require[d] the negative effects of greenhouse gases causing climate change to be addressed not on a local but on a national basis.”<sup>111</sup>

Even if a broad interpretation of sustainable management of the effects of climate change is adopted, the question still remains as to whether indirect greenhouse gas emissions are to be factored in by mineral extractors. For land use a territorial authority is left like regional councils before the 2004 amendments with a lack of national guidance. This would

<sup>103</sup> RMA 1991, s 7(i).

<sup>104</sup> Martin Manning and Andy Reisinger “The Science of Climate Change, its Potential Impacts and Global Response Options” in Alastair Cameron (ed) *Climate Change Law and Policy in New Zealand* (Lexis Nexis, Wellington, 2011) 1 at 29.

<sup>105</sup> RMA 1991, ss 70A, 70B, 104E, and 104F.

<sup>106</sup> RMA 1991, s 7(i).

<sup>107</sup> Rive, above n 28, at 181; Resource Management (Energy and Climate Change) Amendment Bill 2003, Explanatory Note.

<sup>108</sup> Ministry for the Environment “Climate Change Effects and Impacts Assessment: A Guidance Manual for Local Government in New Zealand” (2<sup>nd</sup> ed, May 2008) <<http://www.mfe.govt.nz>>.

<sup>109</sup> *Final Report and Decision of the Board of Inquiry into the Turitea Wind Farm Proposal* (6 September 2011) at ch 19 [14]; *Maniototo Environmental Society Incorporated v Central Otago District Council* EnvC Christchurch C 103/2009, 6 November 2009 at [354] and [722]; *Meridian Energy Ltd v Wellington City Council* EnvC Wellington W 031/07 14 May 2007 at [388]-[400]; *Motorimu Wind Farm Ltd v Palmerston North City Council* EnvC Wellington W 67/2008, 26 September 2008 at [357]; *Rotokawa Joint Venture Ltd v Waikato Regional Council* EnvC Auckland A 41/2007, 18 May 2007 at [430](xii)(c); *Unison Networks Ltd v Hastings District Council* EnvC Wellington W 058/06 17 July 2006 at [74](i)-(j); Compare: *Final Report and Decision of the Board of Inquiry into the Hauauru ma Raki Wind Farm and Infrastructure Connection to Grid* (13 May 2011) at [1119]; *Upland Landscape Protection Society Incorporated v Clutha District Council* EnvC Christchurch C 85/2008, 25 July 2008.

<sup>110</sup> *Genesis Power Ltd v Franklin District Council* [2005] NZRMA 451 (EnvC) at [220].

<sup>111</sup> *Genesis Power Ltd v Greenpeace New Zealand Incorporated* [2009] 1 NZLR 730 (SC) at [55].

beget an ad hoc approach to greenhouse gas mitigation. Nevertheless, while the CMA 1991 allows for the rate of mineral extraction to be controlled, there needs to be sustainable management of the atmosphere in land use planning. It can be argued, consequently, that any mining land use resource consent should offset its greenhouse gas emissions from its activities where a third party combusts the mineral. Carbon offsets in the form of carbon sequestration could be a required planting of trees. Such a resource consent condition may be rendered unenforceable because of the requirement for monitoring. A better resource consent condition would just require payment of money to reduce the greenhouse gas emissions in other areas of the economy to be paid to the Ministry for the Environment for distribution. A best practicable option condition is another alternative.

Despite these comments, the better view is that indirect greenhouse emissions are excluded altogether when considering the environmental effects of land use in the extraction of minerals. The primary reason for exclusion is the Climate Change Response Act 2002 (CCRA 2002). The purpose, as described in the first chapter, is to encourage “global efforts to reduce greenhouse gas emissions by... reducing New Zealand’s net emissions below business-as-usual levels.”<sup>112</sup> Section 204 of the CCRA 2002 specifies that those who carry out mining for coal or natural gas under a permit are deemed to carry out the activity of releasing greenhouse gas emissions before third parties who buy that product release greenhouse gases on its combustion. Section 63 of the CCRA 2002 states that “a participant is liable to surrender [one] unit for each whole tonne of emissions from each activity” regulated by the Act which creates greenhouse gas emissions.<sup>113</sup> From the CCRA 2002, it is obvious that there would be a double counting of greenhouse gas emissions if a mine were to take account of its emissions under the RMA 1991 as well as under the CCRA 2002. While overseas authority has taken indirect greenhouse gas emissions into account from mineral extraction, the CCRA 2002 would seem to provide a bar to such actions in New Zealand.

#### *IV Indirect Greenhouse Gas Emissions and Other Land Uses*

There still, of course, remains doubt as to the extent to which territorial authorities can readily evaluate the mitigation of greenhouse gases in other land use controls.<sup>114</sup> A simple land use example is low suburban development with high urban residential density means less distance to travel in vehicles and greater availability of public transport which reduces greenhouse gas emissions. As Trisolini and Zasloff describe “[t]aken cumulatively, local governments’ land use decisions – their determinations of which categories of activities go

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<sup>112</sup> CCRA 2002, s 3.

<sup>113</sup> CCRA 2002, s 63.

<sup>114</sup> See generally: Klaus Bosselmann, Jenny Fuller and Jim Salinger *Climate Change in New Zealand: Scientific and Legal Assessments* (Auckland, New Zealand Centre for Environmental Law, 2002) at 122-132.

where – have a substantial impact on greenhouse gas production.”<sup>115</sup> For Irvine, high residential density “avoids long, counterproductive commutes and prevents the congestion of the mass exodus from the city centre to the suburbs [at night].”<sup>116</sup> The Regional Policy Statement in *Minister for the Environment v Auckland Regional Council* rings true:<sup>117</sup>

Auckland’s low-density urban form has led to inefficient travel patterns and use of energy. People have to travel further to get to the services they require and to get to and from work... [I]t has led to greater reliance on private vehicles and less effective use of public transport. More travel means greater use of non-renewable fuel, more emissions to the environment from vehicles, a greater contribution of greenhouse gases to the atmosphere, and a greater impact on the quality of air and water in the Region.

It is submitted that “local and regional policy [should continue] to play a central role in efforts to forestall and adapt to climate change [as] neglecting it would represent a failure [of integrated policy].”<sup>118</sup> There should, in theory, be no policy reason why only adaptation and not mitigation ought to have “a distinct local focus.”<sup>119</sup> A purely nationalistic top-down approach has limits<sup>120</sup> and ignores the beneficial flexibility inherent in a bottom-up approach. The preferable approach is that:<sup>121</sup>

[e]xplicitly empowering or directing local government to take some responsibility for the management of greenhouse gases provides opportunities for [climate change] to be addressed through all levels of society.

#### A Urban Planning

In *Canterbury Regional Council v Waimakiriri District Council*, greenhouse gas emissions in transport planning were discussed.<sup>122</sup> In this case, rural land was rezoned for the 1800 household Pegasus Bay development. The plan change was challenged because there was a need to encourage “transport patterns which would increase the efficiency of fuel use; the reduction of motor vehicle emissions; and the coming into being of alternative modes of transport.”<sup>123</sup> The court held that “[t]he question of... global emissions is not a matter for a Regional Council to address because it has no direct regional effect.”<sup>124</sup> Regional policy statements were for regional resource management issues and national policy statements were for national matters. The court noted that “the overall potential reduction due to localised

<sup>115</sup> Katherine Trisolini and Jonathan Zasloff “Cities, Land Use, and The Global Commons: Genesis and the Urban Politics of Climate Change” in William Burns and Hari Osofsky (ed) *Adjudicating Climate Change: State, National, and International Approaches* (Cambridge, Cambridge University Press, 2009) 72 at 73.

<sup>116</sup> Jessica Irvine “A Changing Climate for Urban Design: An Examination of the New Zealand Regulatory Approach” (2008) 12 NZJEL 277 at 287.

<sup>117</sup> *Minister for the Environment v Auckland Regional Council* EnvC Auckland A094/96 6 November 1996 at 8.

<sup>118</sup> Trisolini and Zasloff, above n 115, at 98.

<sup>119</sup> Vernon Rive and Teresa Weeks “Adaptation to Climate Change in New Zealand” in Alastair Cameron (ed) *Climate Change Law and Policy in New Zealand* (Lexis Nexis, Wellington, 2011) 345 at 358.

<sup>120</sup> Bernard Robertson “The Environment and Law” [2006] NZLJ 201 at 201.

<sup>121</sup> Bosselmann, Fuller and Salinger, above n 114, at 141.

<sup>122</sup> *Canterbury Regional Council v Waimakiriri District Council* [2002] NZRMA 208 (EnvC).

<sup>123</sup> At [22].

<sup>124</sup> At [103].

urban strategies is very small” comparative to methane emissions from agriculture.<sup>125</sup> Therefore, “the alleged increases in all vehicle emissions are not of such significance regionally as to warrant interference with otherwise acceptable land activities on land suitable for that purpose.”<sup>126</sup>

A different result was reached in *AMI Ltd v Christchurch City Council*. In that case, AMI Ltd wished to relocate its main Christchurch office to Clearwater Resort north of Christchurch.<sup>127</sup> AMI sought a plan change to make the residential area partially commercial. The city plan promoted “patterns of land use that promote and reinforce a close proximity and good accessibility between living, business and other employment areas.”<sup>128</sup> This involved “reduced air emissions from transport through a strategy of consolidating urban form” allowing for the “retain[ing of] a viable public transport” system and to lessen “dependence on motor vehicle use.”<sup>129</sup> Although “Council[s] ha[ve] limited powers to control [greenhouse gas emissions] it can [influence] land use and growth policies” for a sustainable transport system.<sup>130</sup> AMI Ltd argued that the transport objectives could be overcome through “a workplace transport management plan” which would adhere to “ISO 14064-1 Greenhouse Gas Part 4 and the Greenhouse Gas Protocol from the World Resources Institute.”<sup>131</sup> Nonetheless, the court determined that “the likely increase in the use of the private motorcar for AMI employees travelling to work” would fail to achieve the plans objectives.<sup>132</sup> This was because “94 [per cent] of all trips to the new location for AMI offices would be made by private car.”<sup>133</sup> The court found it difficult to assess the work transport management plan and doubted whether “an effective [work transport management plan] could be achieved.”<sup>134</sup>

## *B Overseas Authority*

Indirect greenhouse gas land use decisions have also seen extensive litigation overseas. Litigation has surrounded oil pipelines,<sup>135</sup> natural gas pipelines,<sup>136</sup> transmission lines for electricity derived from fossil-fuels;<sup>137</sup> railway lines for coal transport;<sup>138</sup> deforestation;<sup>139</sup> expansion of airports;<sup>140</sup> approval of an expansive WalMart;<sup>141</sup>

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<sup>125</sup> At [111].

<sup>126</sup> At [112].

<sup>127</sup> *AMI Ltd v Christchurch City Council* EnvC Christchurch C 100/08 1 September 2008.

<sup>128</sup> At [32].

<sup>129</sup> At [31].

<sup>130</sup> At [39].

<sup>131</sup> At [18].

<sup>132</sup> At [46].

<sup>133</sup> At [80].

<sup>134</sup> At [86].

<sup>135</sup> *Sierra Club v Clinton* 689 F Supp 2d 1147 (D Minn 2010).

<sup>136</sup> Amy Stein “Climate Change under the NEPA: Avoiding Cursory Consideration of Greenhouse Gases” (2010) 81(2) U Colo L Rev 473 at 506.

<sup>137</sup> *Border Power Plant Working Group v Department of Energy* 260 F Supp 2d 997 (SD Cal 2003).

<sup>138</sup> *Mid States Coalition for Progress v Surface Transportation Board* 345 F 3d 520 (8<sup>th</sup> Cir 2003).

<sup>139</sup> *Conservation NorthWest v Rey* 674 F Supp 2d (WD Wash 2009).



transportation to cargo facilities;<sup>142</sup> and expansion of motor highways.<sup>143</sup> Clearly, land use decisions which contribute indirectly to greenhouse gas emissions are becoming well recognised. *London Borough of Hillingdon v Secretary of State for Transport* is a good example of the “increasing importance of climate change as a factor directing planning policies.”<sup>144</sup> A third runway at London’s Heathrow airport had been under discussion since 2003. In 2009, the Secretary of State was satisfied that the conditions set out in a preliminary plan could be met. Also in 2009, governmental documents indicated that greenhouse gas emissions “in 2050 w[ere] not [to] exceed 2005 levels”<sup>145</sup> and that total air traffic movements “in the UK should not increase by more than 55 [per cent] between 2005 and 2050.”<sup>146</sup> Hence, environmental and local groups argued that the Secretary of State had failed in the “major decisions on increases in airport capacity [to take account of] the wider context of aviation’s climate impacts.”<sup>147</sup> The court concluded that “common sense demanded that a policy established in 2003” before important developments in climate change policy in “the Climate Change Act 2008, should be subject to review in the light of those developments.”<sup>148</sup> There was nothing in law entitling the Secretary of State to “limit the scope of the permissible debate” over the third runway at Heathrow airport.<sup>149</sup>

A slightly different scenario existed *Barbone and Ross (on behalf of Stop Stansted Expansion) v Secretary of State for Transport* where claimants wished to quash the grant of planning permission to increase the number of annual air traffic movements of Stansted airport.<sup>150</sup> The claimants argued that “the impact of aircraft emissions.... would be highly damaging” and “to manage the impact of aviation through concerted international action under an emissions trading scheme [is] unrealistic and uncertain.”<sup>151</sup> The argument followed that “the Secretaries of State had to choose between the competing policies of (i) expanding air traffic and (ii) addressing climate change.”<sup>152</sup> The court reasoned that “the reduction in greenhouse gas emissions across the economy does not mean that every sector is expected to follow the same path” and “the best way of ensuring that aviation contributes towards the

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<sup>140</sup> *London Borough of Hillingdon v Secretary of State for Transport* [2010] EWHC 686 (Admin); *Barbone (on behalf of Stop Stansted Expansion) v The Secretary of State for Transport* [2009] EWHC 463 (Admin).

<sup>141</sup> Center for Biological Diversity “Negotiated Resolution of Consolidated Civil Action *Coalition for Environmental Integrity in Yucca Valley, Center for Biological Diversity v Town of Yucca Valley* (San Bernardino County Superior Court, Case No: CIVSS 810232) Walmart Supercenter, Yucca Valley Retail Specific Plan” (4 March 2010) <[www.biologicaldiversity.org](http://www.biologicaldiversity.org)>.

<sup>142</sup> *Patrick Autocare Pty Ltd v Minister for Infrastructure (No.2)* [2005] NSWLEC 412.

<sup>143</sup> *Sierra Club v Federal Highway Administration* 715 F Supp 2d 721 (SD Tex 2010).

<sup>144</sup> *London Borough of Hillingdon v Secretary of State for Transport* [2010] EWHC 686 (Admin) at [3].

<sup>145</sup> At [25].

<sup>146</sup> At [25].

<sup>147</sup> At [15].

<sup>148</sup> At [52].

<sup>149</sup> At [64].

<sup>150</sup> *Barbone (on behalf of Stop Stansted Expansion) v The Secretary of State for Transport* [2009] EWHC 463 (Admin).

<sup>151</sup> At [72].

<sup>152</sup> At [73].

goal of climate stabilisation will be through a well-designed emissions trading regime, operating on an international basis.”<sup>153</sup> The Court agreed that the conclusion was one “entitled to [be] reach[ed] on the evidence” as such matters involved policy.<sup>154</sup> Sir Thayne Forbes was “satisfied that... the Secretaries of State did take properly into consideration the environmental information relating to the estimated emissions from the [airport] proposal.”<sup>155</sup>

### C Analysis

These decisions provide the background to a multifaceted policy debate at the heart of mitigating greenhouse gas emissions. It is easy to declare that “no climate change effect directly linked to the proposed additional use of the [land use] could be demonstrated.”<sup>156</sup> These decisions reveal that while greenhouse gases must be taken into account, any change to land use is unlikely to be enough to have an effect on the global atmosphere. Accordingly greenhouse gas emissions may as well be discarded. Yet, greenhouse gases are the result of a cumulative effect. The courts have focused on the forest to the exclusion of the trees. The wide definition of effect which includes cumulative effects is precisely the sort of effect that the RMA 1991 regulates. To repeat, the broad reasoning of Wilson J in *Genesis Energy v Greenpeace*, the purpose of the 2004 amendment “require[d] the negative effects of greenhouse gases causing climate change to be addressed not on a local but on a national basis.”<sup>157</sup> This prises control of reducing greenhouse gas emissions from regional and territorial government and thereby robs them of creativity.<sup>158</sup> The Supreme Court can not have intended to take the power away from regional and territorial authorities to consider “sustainable transport” as mandated in the Land Transport Management Act 2003.<sup>159</sup>

These decisions illustrate that it is easy to put faith in an omnipresent emissions trading scheme of the future. Such reasoning emphasises that the CCRA 2002 displaces specific regulation. It ignores, however, that transport emissions are enabled through land use planning as New Zealand is criss-crossed with roads. The argument follows that there will be double counting if the CCRA 2002 and the RMA 1991 are both used to regulate greenhouse gas emissions. But the CCRA 2002 and RMA 1991 can be complementary.<sup>160</sup> If land use changes and greenhouse gas emissions conflict the CCRA 2002 should prevail. The argument that “there is likely to be little that the RMA tools and processes can add... to improve market

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<sup>153</sup> At [78].

<sup>154</sup> At [77].

<sup>155</sup> At [92].

<sup>156</sup> At [69].

<sup>157</sup> *Genesis Power Ltd v Greenpeace New Zealand Incorporated* [2009] 1 NZLR 730 (SC) at [55].

<sup>158</sup> Klaus Bosselmann “Achieving the Goal and Missing the Target: New Zealand’s Implementation of the Kyoto Protocol” (2005) 2 Macquarie J Int’l & Comp Envtl L 75 at 101.

<sup>159</sup> Land Transport Management Act 2003, ss 3(1), 3(2)(b), 14(a)(ii)(E), 15(a)(ii)(E), 18J(2)(a)(ii)(E), 19B(a)(ii)(E), 20(2)(c)(v), 20(2)(d), 48(1)(b)(v), 58(1)(b)(v), 68(a)(ii)(E), 75(a)(ii)(E), 75(a)(iv), 87(1)(a)(ii)(E), 96(1)(a)(i), 105(2)(h), and 105(3)(g).

<sup>160</sup> Bosselmann, above n 158, at 101.

functions within a least cost framework” should be rejected.<sup>161</sup> The CCRA 2002 is not an environmental planning statute and without the RMA 1991 greenhouse gases fall into a legal abyss. It follows that greenhouse gas emissions should be factored in to urban density land use but not for mining land use through the territorial authority, as a practical reconciliation of the RMA 1991 of the CCRA 2002. Indirect greenhouse gases should not be stuck in a dichotomy of either being considered or not. It is better for a territorial authority to evaluate critically whether a change in land use is to be regulated by the RMA 1991 or the CCRA 2002 or both.

## V New Zealand Bill of Rights Act 1990

A final issue is that links have been made between human rights law and climate change.<sup>162</sup> As climate change will involve health risks of foreign diseases as well as the risks of extreme weather events causing property damage and death, it is arguable that s 9 of the New Zealand Bill of Rights Act 1990 (NZBORA 1990) which protects the right not to be deprived of life is invoked.<sup>163</sup> Jurisprudence in developing countries has recognised the right to a healthy environment through this portal.<sup>164</sup> Thus, the “[r]ight to live is a fundamental right... and it includes the right of enjoyment of pollution free water and air for full enjoyment of life.”<sup>165</sup> In New Zealand, Williams J in *Lawson v Housing New Zealand* has doubted a right to life extends to social and economic factors.<sup>166</sup> The major hurdle is that any risk to life needs to be imminent with the applicant being personally affected. In the climate change scenario as seen in chapter one, causation is difficult to establish and s 9 of the NZBORA 1990 is aimed at fatality because there is no right to a certain quality of life but of life itself. If successfully invoked, the court would then consider an interpretation of provisions in legislation “consistent with the rights and freedoms contained [there]in.”<sup>167</sup>

## VI Conclusion

Contrary to claims that the CCRA 2002 is New Zealand’s sole response to mitigating climate change, different forms of regulation will be required to mitigate greenhouse gas

<sup>161</sup> Ministry for the Environment *Climate Change Domestic Options Policy Statement* (Wellington, 1999) at 77 as cited by Bosselmann, Fuller and Salinger, above n 114, at 101.

<sup>162</sup> Susan Glazebrook “Human Rights and the Environment” (2009) 40 VUWLR 293; Stephen Humphreys and Mary Robinson *Human Rights and Climate Change* (Cambridge, Cambridge University Press, 2010); Amy Sinden “An Emerging Human Right from Climate Change: The Case against Gas Flaring in Nigeria” in William Burns and Hari Osofsky (ed) *Adjudicating Climate Change: State, National and International Approaches* (Cambridge University Press, New York, 2009) 173.

<sup>163</sup> Svitlana Kravchenko “Right to Carbon or Right to Life: Human Rights Approaches to Climate Change” (2008) 9 Vt J Envtl L 513.

<sup>164</sup> India: *Charan Lal Sahu v Union of India* (1990) 1 SCC 613; *Subhash Kumar v State of Bihar* (1991) 1 SCC 598; *MC Mehta v Union of India* (1986) 2 SCC 176; Nigeria: *Gbemre v Shell Petroleum Dev Co Nigeria Ltd*, No FHC/B/CS/53/05 (FHC 14 November 2005).

<sup>165</sup> *Subhash Kumar v State of Bihar* (1991) 1 SCR 5 at 13 [also cited at (1991) 1 SCC 598] as cited by Kravchenko, above n 163, at 539.

<sup>166</sup> *Lawson v Housing New Zealand* [1997] 2 NZLR 474 (HC) at 494.

<sup>167</sup> New Zealand Bill of Rights Act 1990, s 6.

emissions and “[t]here will be repeated questions, including many legal questions, about the relationship between the market and regulation.”<sup>168</sup> While discharges of greenhouse gas emissions are not considered in New Zealand under the RMA 1991, there is potential scope for indirect greenhouse gas emissions to be assessed. For mining, existing mining privileges are regulated by a variety of outdated statutory mechanisms and therefore such privileges are not read consistently with the RMA 1991 as currently interpreted. When current RMA 1991 compliant mining permits are scrutinised, there will be arguments that the activities engaged in are too small to have any influence on climate change and that the CCRA 2002’s market ousts the RMA 1991. This chapter submitted that the global nature of greenhouse gases should not be a disincentive to the cumulative effects of greenhouse gas reductions. The CCRA 2002 should not displace the RMA 1991 as such an interpretation forsakes the foundation of the RMA 1991. Other land uses which involve indirect greenhouse gas emissions such as high density housing should be and are considered under the RMA 1991. Land use which reinforces the atmosphere’s sustainable management ought to be encouraged.

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<sup>168</sup> Tim Bonyhady “The New Australian Climate Law” in Tim Bonyhady and Peter Christoff (ed) *Climate Law in Australia* (Sydney, Federation Press, 2007) 8 at 26.

## Chapter 4

### The New Zealand Emissions Unit

The Kyoto Protocol has not created or bestowed any right, title or entitlements to emissions of any kind on [developed countries and economies in transition]

Marrakesh Accords<sup>1</sup>

#### *I Introduction*

The Climate Change Response Act 2002 (CCRA 2002) sets up an emissions trading scheme to reduce greenhouse gas emissions in New Zealand (NZETS). This is based on the international preferred option for mitigation as a market approach to environmental protection rather than any other form of environmental regulation. The objective of emissions trading is to limit emissions that are produced by putting a price on the emissions. The result is that those who do not emit or reverse the process of emissions are rewarded. As there is a limit on the level of emissions, the market rather than the government finds a price to put on the emissions. Trading, therefore, attempts to find those that are able to reduce emissions or reverse the process of emissions for the least cost. The nature of the thing that is traded has been variously described to include the words “permit”, “allowance”, “offset”, “unit”, “credit”, and “certificate”. For consistency, the term “emissions unit” is used throughout. As these synonyms make clear, an emissions unit is an amorphous creature even though it represents the avoidance of one tonne of carbon dioxide equivalent. Despite the politics, the New Zealand emissions unit (NZU) has remained. This chapter, therefore, analyses the legal nature of the NZU. With this theoretical basis, it becomes imperative to analyse how the NZU will function in practice under the NZETS to reduce greenhouse gases. This requires an examination of the emissions registry, holding accounts, participants, free allocation, transfer, offences, and fraud. How the NZU functions under other statutes will further expose the unique nature of this statutory created form of personal property.

#### *II United Nations Framework Convention on Climate Change 1992 and the Kyoto Protocol 1998*

After the IPCC issued its first report, the United Nations Framework Convention on Climate Change (UNFCCC) was negotiated and opened for signature in 1992. The objective of the Convention was to achieve international “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.”<sup>2</sup> This was to be “achieved in a time frame sufficient to

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<sup>1</sup> United Nations Framework Convention on Climate Change “Report of the Conference of the Parties on its Seventh Session held at Marrakesh” 29 October – 10 November 2001, Decision 15/CP.7 (FCCC/CP/2001/13/Add2, 21 January 2002) <<http://unfccc.int>>.

<sup>2</sup> United Nations Framework Convention on Climate Change 1771 UNTS 107 (opened for signature 9 May 1992, entered into force 21 March 1994), art 2 [UNFCCC].

allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.”<sup>3</sup> Climate change was, thus, defined as “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.”<sup>4</sup> The Convention is guided by several principles including intergenerational equity, common but differentiated responsibilities, the precautionary principle and sustainable development.<sup>5</sup> In accordance with the principle of common but differentiated responsibilities, developing and developed countries have differing responsibilities.<sup>6</sup> The remaining provisions of the Convention are procedural. There is a requirement to record “national inventories of anthropogenic greenhouse gas emissions.”<sup>7</sup> A Conference of the Parties (COP) is established with a Secretariat meeting annually<sup>8</sup> and various subsidiary bodies are created. For instance, a financial mechanism is created to fund projects to address climate change especially in vulnerable developing countries.<sup>9</sup> A central part of the Convention anticipates that the COP may “adopt protocols to the Convention.”<sup>10</sup>

In 1997 at Kyoto, Japan, an agreement for legally binding targets for emissions reductions was fortified with the Kyoto Protocol. Negotiations were complex and compromises were made. In 2001, the United States made it clear that it would not ratify the Protocol. However, after Russia ratified the Protocol the Protocol entered into force in 2005. The main operative provision is Article 3(1) which provides:<sup>11</sup>

[Developed countries] shall, individually or jointly, ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of greenhouse gases... do not exceed their assigned amounts, calculated pursuant to their quantified emission limitation and reduction

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<sup>3</sup> UNFCCC 1992, art 2.

<sup>4</sup> UNFCCC 1992, art 1.

<sup>5</sup> UNFCCC 1992, art 3.

<sup>6</sup> A differentiation is also made between all developed countries (Annex I) and developed countries without those undertaking transition to a market economy (Annex II). Annex I includes Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, European Economic Community, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Liechtenstein, Lithuania, Luxembourg, Monaco, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom of Great Britain and Northern Ireland, and the United States of America. Annex II includes Australia, Austria, Belgium, Canada, Denmark, European Economic Community, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland, and United States of America.

<sup>7</sup> UNFCCC 1992, art 4(1)(a).

<sup>8</sup> Vernon Rive “International Framework” in Alastair Cameron (ed) *Climate Change Law and Policy in New Zealand* (LexisNexis, Wellington, 2011) 49 at 60: COP-1 Berlin (1995), COP-2 Geneva (1996), COP-3 Kyoto (1997), COP-4 Buenos Aires (1998), COP-5 Bonn (1999), COP-6 The Hague (2000), COP-6.5 Bonn (2001), COP-7 Marrakech (2001), COP-8 New Delhi (2002), COP-9 Milan (2003), COP-10 Buenos Aires (2004), COP-11 Montreal (2005), COP-12 Nairobi (2006), COP-13 Bali (2007), COP-14 Poznan (2008), COP-15 Copenhagen (2009), COP-16 Cancun (2010), COP-17 Durban (2011), COP-18 Qatar (2012).

<sup>9</sup> UNFCCC 1992, art 11.

<sup>10</sup> UNFCCC 1992, art 17(1).

<sup>11</sup> Kyoto Protocol to the United Nations Framework Convention on Climate Change (opened for signature 16 March 1998, entered into force 16 February 2005) [Kyoto Protocol 1998], art 3(1).

commitments... with a view to reducing overall emissions of such gases by at least 5 per cent below 1990 levels in the commitment period 2008 to 2012.

The references to “assigned amounts” and “qualified emission limitation or reduction commitments” refer to the commitment to reduce greenhouse gases that each developed country negotiated and that was set in the Kyoto Protocol.<sup>12</sup> This is calculated as against a percentage of the base year of 1990. For example, New Zealand has to meet its commitment of 100 per cent its 1990 levels in the first commitment period from 2008 to 2012.<sup>13</sup>

In order to achieve reductions in greenhouse gas emissions given that climate change is a global problem and reductions can be made anywhere, a number of “flexibility mechanisms” were created in the Protocol based on a market-orientated approach to mitigation.<sup>14</sup> This market-orientated approach had been used for ozone depleting substances<sup>15</sup> and acid rain in the United States.<sup>16</sup> Nonetheless, other forms of environmental regulation have been proffered and this market-orientated approach has been criticised.<sup>17</sup> Although traditional command and control regulation can be effective at reducing emissions the government is required to know what standard is required to be set for each individual entity that creates emissions which can be costly. Alternatively, a tax is another way of reducing emissions putting a fixed cost on emissions which creates a disincentive for creating emissions.<sup>18</sup> This requires a government to know in advance what price to put on emissions. A tax which is too high will be unduly punitive and a tax that is too low will be too lenient. By contrast, market-based instruments are designed to require a set outcome with a set amount of emissions and leave the market through transfer of the prescribed authorisations to

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<sup>12</sup> Kyoto Protocol 1998, Annex B.

<sup>13</sup> Kyoto Protocol 1998, Annex B.

<sup>14</sup> MJ Mace “The Legal Nature of Emissions Reductions and EU Allowances: Issues Addressed in an International Workshop” (2005) 2 JEEPL 123 at 123.

<sup>15</sup> Montreal Protocol on Substances that Deplete the Ozone Layer to the Vienna Convention for the Protection of the Ozone Layer (open for signature 16 September 1987, entered into force 1 January 1989).

<sup>16</sup> Clean Air Act 42 USC §7651 (1990).

<sup>17</sup> See generally: James Huffman “Free Market Environmentalism and Fairness” in Klaus Bosselmann and Benjamin Richardson (ed) *Environmental Justice and Market Mechanisms: Key Challenges of Environmental Law and Policy* (Kluwer Law, London, 1999) 277 at 280; Robert Nordhaus and Kyle Danish “Assessing the Options for Designing a Mandatory US Greenhouse Gas Reduction Program (2005) 32 BC Env'tl Aff L Rev 97 at 160; Benjamin Richardson “Changing Regulatory Spaces: The Privatization of New Zealand Environmental Law?” in Klaus Bosselmann and Benjamin Richardson (ed) *Environmental Justice and Market Mechanisms: Key Challenges of Environmental Law and Policy* (Kluwer Law, London, 1999) 209 at 229; Matthieu Wemaere, Charlotte Streck and Thiago Chagas “Legal Ownership and Nature of Kyoto Units and EU Allowances” in David Freestone and Charlotte Streck (ed) *Legal Aspects of Carbon Trading: Kyoto Copenhagen and Beyond* (Oxford University Press, Oxford, 2009) 35 at 38

<sup>18</sup> Carbon Tax Act SBC 2008 c 40; Reuven Avi-Yonah and David Uhlmann “Combating Global Climate Change: Why a Carbon Tax is a Better Response to Global Warming than Cap and Trade” (2009) 28(3) Stanford Envir Law J 3; Geoff Bertram and Simon Terry *The Carbon Challenge: New Zealand's Emissions Trading Scheme* (Bridget Williams Books, Wellington, 2010); Amy Christian “Designing a Carbon Tax: The Introduction of the Carbon-Burned Tax (CBT)” (1992) 10 UCLA J Env'tl L & Policy 221; Lars Hoffmann “The Role of Economic Instruments to Reduce Carbon Emissions and their Implementation: A Comparison of Environmental Policies in New Zealand and Germany” (2006) 10 NZ J Env'tl L 129; Gilbert Metcalf and David Weisbach “The Design of a Carbon Tax” (2009) 33 Harv Env'tl L Rev 499.

determine how to achieve such an outcome.<sup>19</sup> The main problem with the market approach is price volatility.<sup>20</sup> Such market instruments are also quite administratively complex.

This administrative complexity means there are in essence two market-based approaches to reducing emissions in the Kyoto Protocol. The first mechanism is the “cap-and-trade” system. Article 3(7) assigns developed countries through the International Transaction Log a number of Assigned Amount Units (AAUs) in accordance with its prescribed obligation to reduce emissions detailed in Annex B. One emissions unit is allocated which allows the holder to emit one tonne of carbon dioxide equivalent into the atmosphere. There are a limited number of emissions units assigned (known as the cap) so an entity which does not emit any greenhouse gases but is given an emissions unit may sell that emissions unit to an entity which does wish to emit greenhouse gases into the atmosphere for money (known as trading). An entity which emits greenhouse gases without emissions units will face penalties. This process is known as international emissions trading. The stringency of the cap can be quite contentious. A related concept is known as Joint Implementation.<sup>21</sup> This is where one developed country finances another developed country to engage in “projects aimed at reducing anthropogenic emissions by sources or enhancing anthropogenic removals by sinks of greenhouse gases.”<sup>22</sup> The developed country financier is granted Emission Reduction Units (ERUs) from the developed country that reduced emissions. The developed country that reduced the emissions is required to surrender an equivalent amount of AAUs for the amount of ERUs that the developed country financier was granted.

The second market-based approach to reducing emissions in the Kyoto Protocol is known as “baseline-and-credit” system. A baseline is created for industries based on an average and historical pattern of emissions (the baseline). If the entity emits less than the baseline, such an entity is given emissions units (the credit). If an entity emits more than the baseline, such an entity must buy emissions units which other entities have created from reductions. The baseline can be static or can reduce over time. The setting of the baseline is therefore quite controversial. A simple analogy to the baseline-and-credit system is where developed countries change greenhouse gas concentrations with “removals by sinks resulting from direct human-induced land use change and forestry activities (LULUCF), limited to

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<sup>19</sup> See generally: Cinnamon Carline *Climate Change Law and Policy: EU and US Approaches* (Oxford University Press, Oxford, 2010); Nicola Durrant *Legal Responses to Climate Change* (The Federation Press, Sydney, 2010); Michael Faure and Marjan Peeters (ed) *Climate Change and European Emissions Trading: Lessons for Theory and Practice* (Edward Elgar, Cheltenham, 2008); David Hodgkinson and Renee Garner *Global Climate Change: Australian Law and Policy* (LexisNexis Butterworths, Chatswood, 2008); Dennis Mahony (ed) *The Law of Climate Change in Canada* (Canada Law Book, Toronto, 2010); Robert Stavins “A Meaningful US Cap-and-Trade System to Address Climate Change (2008) 32 Harv Envtl L Rev 293; Miles Young “Beautifying the Ugly Step-Sister: Designing an Effective Cap-and-Trade Program to Reduce Greenhouse Gas Emissions” (2009) BYU L Rev 1379.

<sup>20</sup> Barclay Rogers “Carbon Markets” [2007] NZLJ 336 at 336.

<sup>21</sup> Kyoto Protocol 1998, art 6.

<sup>22</sup> Kyoto Protocol 1998, art 6.



afforestation, reforestation and deforestation since 1990”<sup>23</sup> and there is an allocation of Removal Units (RMUs) to the developed country from the baseline of having no sinks removals.<sup>24</sup> Consistent with this, developed countries are liable for deforestation that takes place before 1990.<sup>25</sup> A more pure form of the baseline-and-credit system is provided in the Clean Development Mechanism.<sup>26</sup> This means that developed countries can earn Certified Emissions Reductions (CERs) for financing reductions in developing countries overseen by the executive Board of the Clean Development Mechanism. Such reductions must be “[r]eal, measurable, and long-term benefits related to the mitigation of climate change” and such emissions reductions “are additional to any that would occur in the absence of the certified project activity.”<sup>27</sup> Moreover, the purchase of CERs must be additional to domestic actions at reducing greenhouse gas emissions.<sup>28</sup>

### *III Climate Change Response Act 2002*

In New Zealand, the Convention and the Kyoto Protocol have been incorporated into New Zealand law by the CCRA 2002. As described previously, the purpose of the Act is “to enable New Zealand to meet its international obligations under the Convention and the Protocol” including the obligation to limit the number of tonnes of greenhouse gases emitted in the first commitment period as well as to report to the Convention Secretariat of New Zealand’s greenhouse gas emissions.<sup>29</sup> In essence, it is based on a “cap-and-trade” emissions trading scheme model.<sup>30</sup> The Act is:<sup>31</sup>

to provide for the implementation, operation, and administration of a greenhouse gas emissions trading scheme in New Zealand that supports and encourages global efforts to reduce greenhouse gas emissions... by reducing New Zealand’s net emissions below business-as-usual levels.

In this context:<sup>32</sup>

business-as-usual levels means the levels of New Zealand’s greenhouse gas emissions [estimated] at any particular point in time, as if the greenhouse gas emissions trading scheme provided for under this Act had not been implemented.

Although the Government originally anticipated the RMA 1991 or a carbon tax would be appropriate and to this end engaged in various Negotiated Greenhouse Agreements

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<sup>23</sup> Kyoto Protocol 1998, art 3(3).

<sup>24</sup> Kyoto Protocol 1998, art 3(4).

<sup>25</sup> Kyoto Protocol 1998, art 3(4).

<sup>26</sup> Kyoto Protocol 1998, art 12.

<sup>27</sup> Kyoto Protocol 1998, art 12(5).

<sup>28</sup> Kyoto Protocol 1998, art 17.

<sup>29</sup> CCRA 2002, s 3(1)(a).

<sup>30</sup> Derek Nolan (ed) *Environmental and Resource Management Law* (4<sup>th</sup> ed, LexisNexis, Wellington, 2011) at 1054.

<sup>31</sup> CCRA 2002, s 3(1)(b).

<sup>32</sup> CCRA 2002, s 3(3).

(NGAs) as well as tenders for Projects to Reduce Emissions (PREs), in 2008 the Government decided to create the New Zealand Emissions Trading Scheme (NZETS) by amending the CCRA 2002.<sup>33</sup> There were other additional measures, described later, to enhance New Zealand's forestry.<sup>34</sup> With a change in Government in 2009, a further amendment Act changed the dates for implementation of various obligations under the NZETS but did not modify the NZETS's underlying structure.<sup>35</sup>

#### *IV A New Zealand Emissions Unit in Theory*

##### *A Property?*

In order to determine the intricacies of emissions units an appropriate starting point concerns the philosophical concept of property.<sup>36</sup> Property is inevitably described as a bundle of rights. For Fraser, property "is a complex and contestable construct... a construct of law [that] is not divorced from the political and economic context within which it operates."<sup>37</sup> Fraser tabulates the liberal incidences of ownership noted by Honoré as including the right to possess, use, manage, income, capital, security, as well as the incident of transmissibility, the absence of a defined term, and prohibition on harmful use.<sup>38</sup> There is also liability to execution (removal of ownership in certain circumstances such as bankruptcy) and having a residuary character (when lesser interests end, the residuary ownership returns to the owner).<sup>39</sup> Hence, it becomes obvious that different property will involve different qualities of interests.<sup>40</sup> The argument follows that the regulation of natural resources calls for "a property-based solution... to control resource use."<sup>41</sup> This avoids the tragedy of the commons<sup>42</sup> where there is no managerial control and individual interests run riot. However, there are a number of alternative solutions to addressing environmental scarcity. A major detraction of a property based solution is that property gives the property owner unwarranted status. For Gray, property merely "add[s] moral legitimacy to the assertion of self-interest [over] resources."<sup>43</sup>

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<sup>33</sup> Climate Change Response (Emissions Trading) Amendment Act 2008.

<sup>34</sup> Karen Price and others *The Emissions Trading Scheme – Advising Your Client on Their Obligations* (New Zealand Law Society, Wellington, 2010) at 35-38.

<sup>35</sup> Climate Change Response (Moderated Emissions Trading) Amendment Act 2009.

<sup>36</sup> See generally: David Dell "Climate Change and Property Law" in Dennis Mahony (ed) *The Law of Climate Change in Canada* (Canada Law Book, Toronto, 2010) ch 17.

<sup>37</sup> Laura Fraser "Property Rights in Environmental Management: The Nature of Resource Consents in the Resource Management Act 1991" (2008) 12 NZJEL 145 at 150.

<sup>38</sup> At 152-153; Anthony Honoré "Ownership" in Anthony Guest (ed) *Oxford Essays in Jurisprudence* (Oxford University Press, London, 1961) 107 at 112-128.

<sup>39</sup> Fraser, above n 37, at 153.

<sup>40</sup> At 153.

<sup>41</sup> At 156.

<sup>42</sup> Garrett Hardin "The Tragedy of the Commons" (1968) 164 Science 1243.

<sup>43</sup> Kevin Gray "Property in Thin Air" (1991) 50 (2) CLJ 252 at 307.

How natural resources have been treated in the past is an appropriate comparison. In Roman law there were in addition to private property, four types of nonexclusive property.<sup>44</sup> There was *res communes* which were things owned by no one but open to use by all due to their fugacious nature (air, freshwater and oceans); *res publicae* as things belonging to the public (roads, harbours, ports and bridges); *res universitatis* which is property belonging to a group of the public (theatres and racecourses); and *res nullius*, things belonging to no one until captured or things belonging to no one as they were too sacred (wild animals and dead bodies). The distinction between *res communes* where the impossibility of ownership means that everybody can use a fugacious resource and *res nullius* which turns nonownership into ownership is complex. This is illustrated in s 122 of the RMA 1991 where resource consents are declared to be neither real nor personal property.<sup>45</sup> Hence, the literature regarding the treatment of natural resources in resource consents under the RMA 1991 provide a useful base upon which to consider the legal nature of an emissions unit. In the author's view the legal treatment of resource consents in s 122 of the RMA 1991 dovetails intentionally with the lack of a compensation regime in the RMA 1991.<sup>46</sup> Hence, the RMA 1991 "floats, rather like oil on water, across the top of ownership rights without affecting the underlying substance."<sup>47</sup> It can be added that "[m]any things that have commercial value do not constitute property."<sup>48</sup> Hence, Fraser contends that resource consents are not property whatsoever but a form of statutory licence.<sup>49</sup> That argument's coherence is in the fact that resource consents are a matter of statutory interpretation rather than property law.

As freedom of transfer is a prerequisite for an emissions unit's purpose to reduce greenhouse gas emissions, an emissions unit is best conceived as "property."<sup>50</sup> Unlike resource consents, there is no statutory wording stating that emissions units are not property. In terms of resource consents, Barton argues property concepts "have a great attraction [but] a dangerous strength."<sup>51</sup> By contrast, Grinlinton takes the nuanced view that resource consents are "statutory property" analogous but not necessarily a statutory licence.<sup>52</sup> Emissions units would seem to fit within the sphere of statutory property given the theoretical need for trading and transfer in an emissions trading scheme. It is to be noted that emissions units like resource consents "are solely governed by the rules in the statute that create them,

<sup>44</sup> Paul du Plessis *Borkowski's Textbook on Roman Law* (4<sup>th</sup> ed, Oxford University Press, Oxford, 2010) at 152 – 153.

<sup>45</sup> RMA 1991, s 122; See also CMA 1991, s 92.

<sup>46</sup> RMA 1991, s 85; Barry Barton "The Nature of Resource Consents: Statutory Permits or Property Rights" in Derek Nolan and others *Environmental Law: National Issues* (New Zealand Law Society, Wellington, 2009) 51 at 70.

<sup>47</sup> *Coleman v Kingston* HC Auckland AP 103-SW00, 3 April 2001 at [28].

<sup>48</sup> Barton, above n 46, at 63.

<sup>49</sup> Fraser, above n 37, at 165.

<sup>50</sup> Personal Property Securities Act 1999 [PPSA], s 16, definition of "emissions units"; Securities Act 1978 [SA 1978], s 2; Securities Markets Act 1988 [SMA 1988], s 37; CCRA 2002, s 29.

<sup>51</sup> Barton, above n 46, at 77.

<sup>52</sup> David Grinlinton "The Nature of Property Rights in Resource Consents" (2007) 7 BRMB 37.

and other generic principles of law.”<sup>53</sup> This involves recognising that while at common law, air like water in “its natural state is incapable of individual ownership”,<sup>54</sup> the creation of an emissions unit under the CCRA 2002 is used in a market solution to scarcity which rests upon an economic need for private property. Similar to resource consents under the RMA 1991 for the use of natural resources, it is arguable that the question of emissions units is one of priority. The words of the statute should be used first followed second by property concepts.

## B Units?

Despite other emissions trading schemes being described variously as involving an “authorisation”,<sup>55</sup> “tradable permit”,<sup>56</sup> “allowance”,<sup>57</sup> “offset”,<sup>58</sup> “credit”,<sup>59</sup> or “certificate”,<sup>60</sup> the NZETS uses the word “unit.”<sup>61</sup> In this respect, a unit represents “a standard amount of a physical quantity”,<sup>62</sup> namely, the avoidance of one tonne of carbon dioxide equivalent (CO<sub>2</sub>-e is the standard measurement for greenhouse gases).<sup>63</sup> Under the CCRA 2002 a “unit” is defined as “a Kyoto unit, a New Zealand unit, or an approved overseas unit.”<sup>64</sup> The Kyoto units have been described above and are unremarkably defined as such. A New Zealand Unit is “a unit issued by the Registrar and designated as a New Zealand unit.”<sup>65</sup> An approved overseas unit is a unit other than a Kyoto unit that is “issued by an overseas registry” and “prescribed as a unit that may be transferred to accounts in the Registry.”<sup>66</sup> Currently, there has been are no approved overseas units which are freely transferrable to be imported into New Zealand.<sup>67</sup> Such an overseas unit may be able to be converted into a Kyoto unit in its own Registry to allow importation to New Zealand.

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<sup>53</sup> At 39; See generally: Martijn Wilder “Nature of an Allowance” in Paul Watchman (ed) *Climate Change: A Guide to Carbon Law and Practice* (Globe Business Publishing Ltd, London, 2008) 93 at 101.

<sup>54</sup> At 40.

<sup>55</sup> Markus Gehring and Charlotte Streck “Emission Trading: Lessons from SO<sub>x</sub> and NO<sub>x</sub> Emissions Allowance and Credit System Legal Nature, Title, Transfer, and Taxation of Emission Allowances and Credits” (2005) 35 ELR 10219 at 10221.

<sup>56</sup> Fraser, above n 37, at 147; Peter Wilson “The Economics of Emissions Trading” in Alastair Cameron (ed) *Climate Change Law and Policy in New Zealand* (LexisNexis, Wellington, 2011) 127 at 145.

<sup>57</sup> Directive 2003/87/EC Establishing a Scheme for Greenhouse Gas Emission Allowance Trading within the Community [2003] OJ L275/32, art 3(a).

<sup>58</sup> Climate Change and Emissions Management Act 2003 SA 2003 c C-16.7, s 5.

<sup>59</sup> Climate Change and Emissions Management Act 2003 SA 2003 c C-16.7, s 5.

<sup>60</sup> Electricity Supply Act 1995 (NSW), s 97AB.

<sup>61</sup> CCRA 2002, s 4, definition of “unit”.

<sup>62</sup> Elspeth Summers and Andrew Holmes (ed) *Collins English Dictionary and Thesaurus* (4<sup>th</sup> ed, HarperCollins Publishers, Glasgow, 2006) at 1320.

<sup>63</sup> CCRA 2002, s 4, definition of “carbon dioxide equivalent”.

<sup>64</sup> CCRA 2002, s 4, definition of “unit”.

<sup>65</sup> CCRA 2002, s 4, definition of “New Zealand unit”.

<sup>66</sup> CCRA 2002, s 4, definition of “approved overseas unit”.

<sup>67</sup> Alastair Cameron (ed) *Climate Change Law and Policy in New Zealand* (LexisNexis, Wellington, 2011) at 268.

## C Ownership of Units?

The CCRA 2002 stipulates that any “person may [apply] to open [one] or more holding accounts in the unit register” in order to hold an emissions unit.<sup>68</sup> There is one major exception to the “holding of units” in a “holding account.” This is s 29 which provides that a printed search result that purports to be issued by the Registrar is receivable as evidence and is proof of any matter recorded in the unit register including “the ownership of units.”<sup>69</sup> Section 30A, nonetheless, stipulates that no action may lie against the Crown for an inaccuracy in a Registrar’s search of the Register.<sup>70</sup> Despite the “holdings” terminology, Cameron has argued that “account holders can be said to “own” the units they hold in their accounts. This is primarily due to the rights that “holding” units gives.”<sup>71</sup> The wording of holding of units is not, however, accidental. Holding is consistent with the RMA 1991.<sup>72</sup> The difference “is between *being* the owner and being *treated* as the owner.”<sup>73</sup> This is analogous to ostensible ownership. Private property can “never truly [be] private [as the] control function of “property” is delegated sovereignty.”<sup>74</sup> This means for all evidential purposes a NZU can be capable of ownership but as a matter of law a NZU can only ever be held because the legislature created and defined such a right. This aligns with stewardship principles in environmental law.<sup>75</sup> The ramifications of such wording mean that the doctrine of eminent domain with a right of compensation is entirely inappropriate in this context.<sup>76</sup>

Such an interpretation of statutory property rights in environmental market-based instruments has proved an important feature of the Fisheries Act 1996.<sup>77</sup> In *New Zealand Fishing Industry Association v Minister of Fisheries*, the Minister decided to reduce a total allowable commercial catch of snapper for a specified area by 39 per cent to ensure

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<sup>68</sup> CCRA 2002, s 18A.

<sup>69</sup> CCRA 2002, s 29.

<sup>70</sup> CCRA 2002, s 30A.

<sup>71</sup> Cameron, above n 67, at 269.

<sup>72</sup> RMA 1991, s 122.

<sup>73</sup> Roger Fenton *Garrow and Fenton's Law of Personal Property in New Zealand: Volume 1* (7<sup>th</sup> ed, LexisNexis, Wellington, 2010) at 34.

<sup>74</sup> Gray, above n 43, at 304.

<sup>75</sup> RMA 1991, s 7; William Lucy “Replacing Private Property: The Case for Stewardship” (1996) 55(3) CLJ 566; Linda Te Aho “Contemporary Issues in Maori Law and Society: Crown Forests, Climate Change, and Consultation – Towards More Meaningful Relationships” (2007) 15 Waikato L Rev 138; Andrea Tunks “Tangata Whenua Ethics and Climate Change” (1997) 1 NZJEL 67.

<sup>76</sup> Chye-Ching Huang “The Constitution and Takings of Private Property” (2011) 24 (4) NZULR 621 at 630; See generally: Barry Barton “The Legitimacy of Regulation” (2003) 20 NZULR 364; Philip Joseph “The Environment, Property Rights, and Public Choice Theory” (2003) 20 NZULR 408.

<sup>77</sup> David Grinlinton “Evolution, Adaptation, and Invention: Property Rights in Natural Resources in a Changing World” in David Grinlinton and Prue Taylor (ed) *Property Rights and Sustainability: The Evolution of Property Rights to Meet Ecological Challenges* (Martinus Nijhoff Publishers, Boston, 2011) 275 at 298; Benjamin Richardson “Changing Regulatory Spaces: The Privatization of New Zealand Environmental Law?” in Klaus Bosselmann and Benjamin Richardson (ed) *Environmental Justice and Market Mechanisms: Key Challenges of Environmental Law and Policy* (Kluwer Law, London, 1999) 209 at 226-229; Cath Wallace “Environmental Justice and New Zealand’s Fisheries Quota Management System” (1999) 3 NZJEL 33.

sustainability.<sup>78</sup> In the Court of Appeal, it was held the Minister failed to have regard to “the possibility of Crown acquisition of quota.”<sup>79</sup> The Court explained that although the quota was a property right, such recognition did not otherwise mandate special treatment.<sup>80</sup>

While quota are undoubtedly a species of property [,] the rights ... are not absolute. They are subject to the provisions of the legislation establishing them. That legislation contains the capacity for quota to be reduced. If such a reduction is otherwise lawfully made, the fact that the quota are a “property right”... cannot save them from reduction. That would be to deny an incident integral to the property concerned.

There has been considerable litigation challenging the Minister’s decision as to appropriate quotas under the Fisheries Act 1996<sup>81</sup> and in *Swanson v Swanson* a quota was held to be property for the purposes of the Matrimonial Property Act 1976.<sup>82</sup> While these quotas themselves are unique, the analogy with an environmental market-based instrument is appropriate as significant case law is already emerging in the European Union as to the ability to challenge free allocations of emissions units (in essence, the cap or the baseline) which is comparable to New Zealand fisheries litigation.<sup>83</sup>

#### D A Right to Emit Greenhouse Gases?

An enduring debate is whether an emissions unit is a right to emit or not. For instance, in New Zealand, Grinlinton defines the NZU as “a reverse nonexclusive profit à prendre in the right to emit [greenhouse gases] into the atmosphere.”<sup>84</sup> Bertram takes the opposing view

<sup>78</sup> *New Zealand Fishing Industry Association v Minister of Fisheries* CA82/97, 22 July 1997; Fisheries Act 1996, s 8.

<sup>79</sup> At 9.

<sup>80</sup> At 16.

<sup>81</sup> *Antons Trawling v Minister of Fisheries* [2007] NZCA 512; *Antons Trawling v Minister of Fisheries* HC Wellington CIV-2007-485-2199, 22 February 2008; *Goodship v Minister of Fisheries* CA236/02, 2 October 2003; *Huntley v Attorney General* HC Wellington CP482/88, 10 March 1999; *Kellian v Minister of Fisheries* CA150/02, 26 September 2002; *Kellian v Minister of Fisheries* HC Wellington CP281/01, 22 July 2002; *Minister of Fisheries v Pranfield Holdings Ltd* [2008] 3 NZLR 649 (CA); *New Zealand Federation of Commercial Fishermen v Minister of Fisheries* HC Wellington CP237/95, 24 April 1997; *New Zealand Recreational Fishing Council v Minister of Fisheries* HC Auckland CIV-2005-404-4495, 21 March 2007; *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] 3 NZLR 438 (SC); *Official Assignee v Chief Executive of the Ministry of Fisheries* [2002] 2 NZLR 722 (CA); *Roaring Forties Seafoods v Minister of Fisheries* HC Wellington CP64/97, 1 May 1997; *Sanford Ltd v New Zealand Recreational Fishing Council Inc* [2008] NZCA 160; *Simunovich Fisheries Ltd v Executive of the Ministry of Fisheries* HC Wellington CIV20044851987 10 November 2004; *Vautier Shelf Company No 14 Ltd v Chief Executive of Ministry of Fisheries* HC Wellington CP20/97, 24 July 2000.

<sup>82</sup> *Swanson v Swanson* [1999] 1 NZLR 19 (CA).

<sup>83</sup> Sanja Bogojević “Litigating the NAP: Legal Challenges for the Emissions Trading Scheme of the European Union” (2010) 3 CCLR 219; Navraj Singh Ghaleigh “Emissions Trading before the European Court of Justice: Market Making in Luxembourg” in David Freestone and Charlotte Streck (ed) *Legal Aspects of Carbon Trading: Kyoto Copenhagen and Beyond* (Oxford University Press, Oxford, 2009) 367; Josephine van Zeven “The European Emissions Trading Scheme Case Law” (2009) 18(2) RECIEL 119; *CEMEX UK Cement v Commission* [2007] ECR II-146; *Drax Power and Others v Commission* [2007] ECR II-67; *EnBW Energie Baden Württemberg v Commission* [2007] ECR II-1195; *Fels-Werke GmbH and Others v Commission* [2007] ECR II-98; [2008] ECR II-48; *Germany v Commission* [2007] ECR II-4431; *Poland v Commission* [2007] ECR II-152; *Société Arcelor Atlantique et Lorraine and Others v Commission* [2008] ECR I-9895; *United Kingdom v Commission* [2005] ECR II-4807; *US Steel Košice v Commission* [2007] ECR II-127; [2008] ECR I-96.

<sup>84</sup> Grinlinton “Evolution, Adaptation, and Invention”, above n 77, at 300.

that the NZU “is not a right to emit carbon” but “a voucher relieving its holder of the need to go... and buy an emissions unit... in order to produce one tonne of CO<sub>2</sub>-equivalent emissions.”<sup>85</sup> Another view is that of Cook who argues “allowances are not themselves a licence to emit [as] each entity covered... must obtain from the government an emission permit.”<sup>86</sup> This means it is still necessary to apply for resource consent for an air discharge for stationary activities under the RMA 1991 although such a requirement is unnecessary for non-stationary activities.<sup>87</sup> The epigraph above from the Marrakesh Accords clarifies that an emissions unit can never be a right to emit because even before emissions trading there was never such a right. This again traverses the ownership-holding distinction. The European Union’s use of the word “allowance” entrenches this conceptualisation because allowance invokes the language of a privilege not a right with an element of permissibility.<sup>88</sup> This theoretical underpinning of having a statutory authorisation rather than an omnipresent property right is essential to the theoretical nature of emissions units.

### *E Real Property?*

It is appropriate to introduce here the broader definition of an emissions unit found identically in the Securities Act 1978 (SA 1978), Securities Markets Act 1988 (SMA 1988) and the Personal Property Securities Act 1999 (PPSA 1999). The definition refers to emissions units rather than NZUs to explicitly include voluntary emissions as Voluntary Emissions Reduction Units (VERs). These statutes provide that an emissions unit, thereby including a NZU, means:<sup>89</sup>

- (a) units as defined in section 4(1) of the Climate Change Response Act 2002
- (b) personal property that-
  - (i) is created by, or in accordance with, any enactment (whether of New Zealand, another country, or any jurisdiction of any country), rule of law, contractual provision, or international treaty or protocol as
    - (A) one of a fixed number of units issued by reference to a specified amount of greenhouse gas; or
    - (B) evidence of a specified amount of reductions, removals, avoidance, storage, sequestration, or any other form of mitigation of greenhouse gas emissions; and
  - (ii) can be surrendered, retired, cancelled, or otherwise used to-
    - (A) offset greenhouse gas emissions under, or otherwise comply with, any enactment (whether of New Zealand, another country, or any jurisdiction of any country), rule of law, contractual provision, or international treaty or protocol; or
    - (B) enable a person who surrenders, retires, cancels, or otherwise uses it to claim an environmental benefit

<sup>85</sup> Bertram and Terry, above n 18, at 59.

<sup>86</sup> Allan Cook “Accounting for Emissions: From Costless Activity to Market Operations” in David Freestone and Charlotte Streck (ed) *Legal Aspects of Carbon Trading: Kyoto Copenhagen and Beyond* (Oxford University Press, Oxford, 2009) 59 at 63.

<sup>87</sup> RMA 1991, s 15(1); Resource Management (National Environmental Standards for Air Quality) Regulations 2004; For vehicles: Land Transport Rule: Vehicle Exhaust Emissions 2007.

<sup>88</sup> Directive 2003/87/EC Establishing a Scheme for Greenhouse Gas Emission Allowance Trading within the Community [2003] OJ L275/32, art 3(a).

<sup>89</sup> PPSA 1999, s 16, definition of “emissions units”; SA 1978, s 2; SMA 1988, s 37.

Notwithstanding the definition of an emissions unit as personal property, each Act defines the emissions unit in a different way. For instance, under the PPSA 1999 an emissions unit is an “investment security.”<sup>90</sup> By contrast, the SMA 1988 defines an emissions unit as a “commodity”<sup>91</sup> and the SA 1978 defines an emissions unit as a “chattel.”<sup>92</sup> The SA 1978 treats “chattels” and “interests in land” in the same manner as exemptions from the Act.<sup>93</sup> These definitions highlight a tension apparent between real and personal property.

Whether an item is real property or personal property ultimately depends on the “degree and object of its annexation.”<sup>94</sup> This requires an objective test as to attachment to land followed by a subjective test as to the intention of the parties involved in the particular transaction. When applying the tests to emissions units, the degree of annexation would indicate that emissions units in trees are attached to the land.<sup>95</sup> The object of annexation would seem to require that emissions units are personal property given explicit statutory references. However, personal property can change into real property. The question needs to be asked, therefore, how will the contractual relationship between a land owner and a holder of emissions units survive the sale of that land upon which trees are affixed? The answer is in s 195 of the CCRA 2002<sup>96</sup> where the Environmental Protection Agency (EPA) must notify the details of forestry to the relevant Registrar of the relevant land database.<sup>97</sup> Upon receipt of the notification, the relevant Registrar must record the notice on the appropriate record, register or deeds index. For transactions involving post-1989 forest land, s 192 of the CCRA 2002 details how such transactions are to take place under the NZETS.<sup>98</sup>

As further analysed in the final chapter, New Zealand has not created a carbon sequestration right like Australian states. The question must be asked given the provisions of the CCRA 2002 whether an emissions unit will support a caveat in order to determine whether an emissions unit is real property as an interest in land. What will the legal situation be if the contractual situation is not reflected on the relevant databases or the relevant land register is different from the database under the CCRA 2002? Although emissions units can be likened to profits à prendre (right to take)<sup>99</sup> which are caveatable,<sup>100</sup> an emissions unit does

<sup>90</sup> PPSA 1999, s 16, definition of “investment security”.

<sup>91</sup> SMA 1988, s 37, definition of “commodity”.

<sup>92</sup> SA 1978, s 2, definition of “chattel”.

<sup>93</sup> SA 1978, s 5.

<sup>94</sup> *Lockwood Buildings Ltd v Trust Bank Canterbury Ltd* [1995] 1 NZLR 22 (CA) at 28.

<sup>95</sup> Tom Bennion and others *New Zealand Land Law* (2<sup>nd</sup> ed, Brookers, Wellington, 2009) at 24; Land Transfer Act 1952, s 2, definition of “land”.

<sup>96</sup> See Climate Change (Forestry Sector) Regulations 2008, reg 10.

<sup>97</sup> CCRA 2002, s 195(1).

<sup>98</sup> CCRA 2002, s 192.

<sup>99</sup> Conveyancing Act 1919 (NSW) ss 87A, 88AB(1), and 88EA; Forestry Act 1959 (Qld) s 61J(5); Forestry Rights Registration Act 1990 (Tas), s 5; Samantha Hepburn “Carbon Rights as New Property: The Benefits of Statutory Verification” (2009) 31 Sydney LR 239 at 243 at 246.

<sup>100</sup> Bennion, above n 95, at 279; *Ellison Ellison v Vukicevic* (1986) 7 NSWLR 104 (SC); *Permanent Trustee Australia Ltd v Shand* (1992) 27 NSWLR 426 (SC).



not in truth take anything from the land but rather something is being brought onto the land itself (carbon) analogous to a profit à rendre (right to give back).<sup>101</sup> Of course, such a right could only ever be equitable devaluing any real property status.<sup>102</sup> *Keppell v Bailey* states, based on the numerus clausus (closed in number) principle,<sup>103</sup> that interests in land should not be expanded because there is always a contractual rather than real property remedy.<sup>104</sup> The argument has superficial merit based on the disaggregation of rights which could conflict. That is, the person who owns that land can divest himself of forestry rights. In Australia, the person who has the forestry rights could further divest himself of the carbon sequestration rights. In New Zealand as the legislature did not give any power in the CCRA 2002 to caveat, the creation of an interest in land for emissions units could be going too far. The legislature intended that the explicit provisions of transmission would be followed.<sup>105</sup> Any opposing argument would point to the necessity of “claim[ing] an environmental benefit”.<sup>106</sup> If an emissions unit is divorced from the environmental benefit, the benefit would be rendered worthless. This is definitely a complicated area of law that needs clarification.

#### *F Income?*

Tax law is central to understanding the nature of an emissions unit.<sup>107</sup> Although politics conflates emissions trading and carbon taxes,<sup>108</sup> for taxation purposes emissions units are property. Emissions units are generally held on revenue account as part of “revenue account property.”<sup>109</sup> This means that “taxable income arises and tax deductions are created in respect of these transactions.”<sup>110</sup> Emissions units are thereby “trading stock”<sup>111</sup> and

<sup>101</sup> See *Clos Farming Estates v Easton* [2002] NSWCA 389 at [60]; Hepburn, above n 99, at 243; Brendan Edgeworth “Profits a Rendre: A Reincarnation?” (2006) 12 APLJ 200; Peter Butt *Land Law* (6<sup>th</sup> ed, Thomson Reuters, Sydney, 2010) at 513.

<sup>102</sup> *Miller v Minister of Mines* [1963] NZLR 560 (PC) at 569; *Wellesley Club Inc v Wellesley Property Holdings Ltd* [2007] 8 NZCPR 421 (HC) at [38].

<sup>103</sup> Hepburn, above n 99, at 241; See also: Brendan Edgeworth “The Numerus Clausus Principle in Contemporary Australian Property Law” (2006) 32 Monash ULR 387; Thomas Merrill and Henry Smith “Optimal Standardization in the Law of Property: The Numerus Clausus Principle” (2000) 110 Yale L J 1.

<sup>104</sup> *Keppell v Bailey* (1834) 39 ER 1042 (Ch) at 1049.

<sup>105</sup> CCRA 2002, s 192.

<sup>106</sup> PPSA 1999, s 16, definition of “emissions units”; SA 1978, s 2; SMA 1988, s 37.

<sup>107</sup> See generally: Clinton Alley and others *New Zealand Taxation 2012: Principles, Cases and Questions* (Brookers, Wellington, 2012) at 66-68; Mark Higgins and Brent Lewers “Tax Consequences of Transactions in Emissions Units” in Karen Price and others *Emissions Trading Scheme* (New Zealand Law Society, Wellington, 2011) 43; Price Waterhouse Coopers “Emission Critical: Issue 7: December 2008” <www.pwc.co.nz>; Price Waterhouse Coopers “Emission Critical: Issue 8: September 2009” <www.pwc.co.nz>; Price Waterhouse Coopers “Emission Critical: Issue 9: September 2009” <www.pwc.co.nz>; Tony Wilkinson and Carrie Lui “Taxation” in Alastair Cameron (ed) *Climate Change Law and Policy in New Zealand* (LexisNexis, Wellington, 2011) 447; ; For Australia: Celeste Black “Climate Change and Tax Law: Policy and Emissions Trading” in Rosemary Lyster (ed) *In the Wilds of Climate Law* (Australian Academic Press, Bowen Hills, 2010) 155; For Canada: John Tobin “Taxation” in Dennis Mahony (ed) *The Law of Climate Change in Canada* (Canada Law Book, Toronto, 2010) ch 15.

<sup>108</sup> Huang, above n 76, at 630.

<sup>109</sup> Income Tax Act 2007 [ITA 2007], s YA 1.

<sup>110</sup> Ernst and Young “A New Wave for New Zealand: Accounting for the New Zealand Emissions Trading Scheme” (2011) Ernst and Young <www.ey.com> at 9.

<sup>111</sup> ITA 2007, s EB 2.

“excepted financial arrangements.”<sup>112</sup> Nonetheless, there are a significant number of explicit exceptions which are dependent on the nature of the emissions unit. For instance, pre-1990 forest emissions units and fishing quota emissions units which are allocated as compensation are treated as “capital property” which means that “income tax liabilities do not arise from the allocation of [these emissions units] by the Crown or from the subsequent sale of [these emissions units].”<sup>113</sup> This is achieved by treating such emissions units as excluded income.<sup>114</sup> In addition, international accounting standards may influence how emissions units are treated for taxation purposes. In the absence of specific guidance, the terms “intangible asset”,<sup>115</sup> “government grant”,<sup>116</sup> “contingent liability”<sup>117</sup> are all currently used.

## G Service?

Moreover, the supply of an emissions unit is generally treated as a zero-rated service under the Goods and Services Tax Act 1985 (GST Act 1985) to ensure that emissions units can be traded on international markets. Zero-rating is consistent with some contributions to a local authority that is a condition of a resource consent or a development contribution.<sup>118</sup> Thus, s 11A(1) of the GST Act 1985 provides that “[a] supply of services [as detailed] must be charged at the rate of 0 [per cent].”<sup>119</sup> This includes “the services [of] an emissions unit [where] the supply is the *transfer* of the emissions unit other than a transfer by the Crown” under a Crown agreement<sup>120</sup> and “the services [of] an emissions unit [where] the supply is the *surrender* of the emissions unit under s 63 of the” CCRA 2002.<sup>121</sup> Zero-rating is also applied where an emissions unit is *issued* either for free allocation or for removal activities.<sup>122</sup> Interestingly, the issuing of an emissions unit for free allocation or for removal activities is both a service and a good.<sup>123</sup> The final category is zero-rating for a voluntary emissions reduction unit (VER) that is *sold or otherwise disposed of* “issued by reference to the sequestration, or avoidance of emission[s], of human-induced greenhouse gases” and is “verified to an internationally recognised standard.”<sup>124</sup> The one exception to zero-rating is essentially the rare situation that a business pays to another business (not the Crown) in emissions units rather than in cash.<sup>125</sup>

<sup>112</sup> ITA 2007, s EW 5; Inland Revenue Department “New Legislation: Climate Change Response (Emissions Trading) Amendment Act 2008” (2008) 20(9) Tax Information Bulletin 9 at 10.

<sup>113</sup> Ernst and Young, above n 110, at 9.

<sup>114</sup> ITA 2007, ss CX 51B and CX51C.

<sup>115</sup> Ernst and Young, above n 110, at 6.

<sup>116</sup> At 7.

<sup>117</sup> At 10.

<sup>118</sup> Goods and Services Tax Act 1985 [GST Act 1985], ss 11B(1B) and 11B(1C).

<sup>119</sup> GST Act 1985, s 11A(1).

<sup>120</sup> GST Act 1985, s 11A(1)(s).

<sup>121</sup> GST Act 1985, s 11A(1)(t).

<sup>122</sup> GST Act 1985, ss 11(1)(o) and 11A(1)(u).

<sup>123</sup> GST Act 1985, ss 11(1)(o) and 11A(1)(u).

<sup>124</sup> GST Act 1985, s 11A(1)(w).

<sup>125</sup> Higgins and Lewers, above n 107, at 61; Inland Revenue Department “Emissions Trading Scheme Amendments – GST” 23(1) Tax Information Bulletin 90 at 90; Wilkinson and Lui, above n 107, at 463.

## *V A New Zealand Emissions Unit in Practice*

### *A Registry*

Under s 10 of the CCRA 2002, a Registry in New Zealand is established which provides for the “accurate, transparent, and efficient accounting” of the “issue of New Zealand units” as well as “the holding, transfer, surrender, and cancellation” of NZUs and approved overseas units.<sup>126</sup> It also allows “the conversion of [NZUs] into [AAUs]” and “the accurate, transparent, and efficient exchange of information between the Registry and overseas registries.”<sup>127</sup> This Act is administered by the EPA.<sup>128</sup> With the appointment of a Registrar to operate the Registry, the Registry must have a unit register under s 18 “in electronic form... accessible via the Registry’s Internet site [and] operated at all times unless the Registrar suspends its operation.”<sup>129</sup> That unit register must contain “a record of the holdings of units [with] the particulars of transactions [including] the issue, transfer, retirement, surrender, conversion, and cancellation of units.”<sup>130</sup> Importantly, a unit recorded in the unit register is “indivisible” and “transferrable.”<sup>131</sup> Section 18A means that any “person may submit an application to the Registrar to open [one] or more holding accounts in the unit register.”<sup>132</sup> Section 18B is worded similarly in relation to closing a holding account although the EPA may close an account if written notice is given by the account holder or reasonable notice is given of the intended holding account closure.<sup>133</sup>

### *B Holding Account*

In order to open a “holding account”, a person must be a “qualified person” which seems broad enough to encompass anyone who is not otherwise disentitled.<sup>134</sup> Once a “holding account” has been created, there may (or must if an entity other than an individual applies) be the appointment of “at least [one] but no more than [five] primary representatives... to operate the holding account on the account holder’s behalf.”<sup>135</sup> Such primary representative must be natural persons who are not otherwise disentitled.<sup>136</sup> This use of primary representatives to operate the holding account on the account holder’s behalf will mean that in the event of fraud, given vicarious liability, the account holder will be liable.<sup>137</sup>

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<sup>126</sup> CCRA 2002, s 10.

<sup>127</sup> CCRA 2002, s 10.

<sup>128</sup> Climate Change Response Amendment Act 2011.

<sup>129</sup> CCRA 2002, s 18.

<sup>130</sup> CCRA 2002, s 18.

<sup>131</sup> CCRA 2002, s 18.

<sup>132</sup> CCRA 2002, s 18A.

<sup>133</sup> CCRA 2002, s 18B.

<sup>134</sup> Climate Change (Unit Register) Regulations 2008, reg 3.

<sup>135</sup> Climate Change (Unit Register) Regulations 2008, reg 15.

<sup>136</sup> Climate Change (Unit Register) Regulations 2008, reg 3.

<sup>137</sup> *Nathan v Dollars and Sense Ltd* [2008] 2 NZLR 557 (SC); Adrian Macey, Greg Milner-White and Diana Collie *Emissions Trading Scheme – Where are We Now?* (Continuing Legal Education, Auckland District Law Society, 2010) at 18; Climate Change (Unit Register) Regulations 2008, reg 15(5).

## *C Participants*

A person who has obligations under the NZETS is called a participant and participation is determined by activities undertaken.<sup>138</sup> There are mandatory participants (in schedule 3)<sup>139</sup> and voluntary participants (in schedule 4).<sup>140</sup> The nature of participation is further divided between mandatory reporting and full obligations. Today, those sectors that have full obligations include forestry, liquid fossil fuels, stationary energy and industrial processes.<sup>141</sup> Those that have mandatory reporting obligations are synthetic gases, waste and agriculture.<sup>142</sup> A useful example of the interaction between mandatory and voluntary participant obligations is in the liquid fossil fuels sector where the mandatory participant is the importer or producer of liquid fossil fuels rather than the downstream consumer who combusts the fuels. The voluntary participant for liquid fossil fuels could be a jet fuel purchaser where the jet fuel purchased exceeds a specified limit.<sup>143</sup> While there is the possibility of exemptions from the NZETS, special circumstances would seem to be required to exist.<sup>144</sup> For a mandatory participant, a person who carries out such an activity must notify the EPA that the person is a participant and that person must apply to open a holding account while subsequently notifying the EPA of the holding account number.<sup>145</sup> This means that a participant must have a holding account.<sup>146</sup> There must, moreover, be monitoring although not necessarily verification<sup>147</sup> of the participant's activities "in accordance with the methodologies prescribed."<sup>148</sup> The central operative provision over a participant's obligations is s 63 of the CCRA 2002 which provides that "a participant is liable to surrender [one] unit for each whole tonne of emissions from each activity listed in schedule 3 or 4 that the participant carries out" as calculated and at the times required by the Act.<sup>149</sup>

A person who undertakes removal activities under the NZETS is called a participant but participation is voluntary. If the participant wishes to obtain emissions units for removals that person must have a holding account.<sup>150</sup> Such a "participant is entitled to receive [one] New Zealand unit for each tonne of removals from the participant's removal activities, as

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<sup>138</sup> CCRA 2002, s 54.

<sup>139</sup> CCRA 2002, sch 3.

<sup>140</sup> CCRA 2002, sch 4.

<sup>141</sup> Nolan, above n 30, at 1059.

<sup>142</sup> At 1059; CCRA 2002, s 219.

<sup>143</sup> CCRA 2002, sch 4 pt 3.

<sup>144</sup> CCRA 2002, s 30G; Climate Change (General Exemptions) Order 2009; Climate Change (Oceana Gold (New Zealand) Limited) Exemption Order 2009; Climate Change (The New Zealand Refining Company Limited) Exemption Order 2009.

<sup>145</sup> CCRA 2002, s 56.

<sup>146</sup> CCRA 2002, s 61.

<sup>147</sup> CCRA 2002, s 62(c).

<sup>148</sup> CCRA 2002, s 62.

<sup>149</sup> CCRA 2002, s 63.

<sup>150</sup> CCRA 2002, s 61(1)(b).

calculated in accordance with this Act.”<sup>151</sup> Like participants with obligations, there must be monitoring although not necessarily verification<sup>152</sup> of the participant’s activities as “prescribed.”<sup>153</sup> This monitoring means that participants must report their emissions and removals in an annual emissions return (although quarterly emissions returns are possible for non-forestry activities).<sup>154</sup> The annual emission return starts from the 1 January each year and finishes on the 31 December. The participant has from the 1 January until the 31 March in the following year to submit an annual emissions return for the preceding year to the EPA for the activities carried out.<sup>155</sup> This would specify the participant’s liability to surrender units and its entitlement to receive units for removals. In some circumstances, it is possible to submit a “final emissions return” outside of the normal annual cycle.<sup>156</sup>

#### *D Free Allocation to Pre-1990 Forest Land and Fishing*

NZUs are freely allocated to owners of pre-1990 forest land and fishing quota owners. This free allocation is made in accordance with an allocation plan. Before these allocation plans are recommended by the Minister, the Minister must consult or be satisfied that consultation has taken place with representatives of persons who appear likely to have an interest in the “pre-1990 forest land allocation plan”<sup>157</sup> or in the “fishing allocation plan.”<sup>158</sup> These allocations plans set out specific criteria which must be met before a free allocation will take place. When an allocation plan becomes operative, the Minister must advertise inviting those eligible to apply for a free allocation in accordance with the allocation plan.<sup>159</sup> After an application is received, the Minister must make “a preliminary determination in accordance with the allocation plan” which is to be followed with “a final determination.”<sup>160</sup> In rare circumstances, the Minister may “reconsider, revoke, and replace a determination.”<sup>161</sup>

#### *E Free Allocation to Emissions Intensive Trade Exposed Participants*

NZUs are also freely allocated to “emissions intensive trade exposed” (EITE) industries.<sup>162</sup> The key word here is “intensive” which indicates that there are elements of a “baseline-and-credit” emissions trading scheme model being used. To qualify, an “eligible industrial activity in respect of a year”<sup>163</sup> must be either “moderately emissions-intensive”<sup>164</sup>

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<sup>151</sup> CCRA 2002, s 64.

<sup>152</sup> CCRA 2002, s 62(1)(c).

<sup>153</sup> CCRA 2002, s 62.

<sup>154</sup> CCRA 2002, s 66.

<sup>155</sup> CCRA 2002, s 65(1).

<sup>156</sup> CCRA 2002, s 118.

<sup>157</sup> CCRA 2002, s 75; Climate Change (Pre-1990 Forest Land Allocation Plan) Order 2010.

<sup>158</sup> CCRA 2002, s 76; Climate Change (Fishing Allocation Plan) Order 2010.

<sup>159</sup> CCRA 2002, s 77(1).

<sup>160</sup> CCRA 2002, ss 77(5) - 77(7).

<sup>161</sup> CCRA 2002, s 77(3).

<sup>162</sup> Cameron, above n 67, at 277.

<sup>163</sup> CCRA 2002, s 80(1).

<sup>164</sup> CCRA 2002, s 161A(3)(a)(i).

or “highly emissions-intensive.”<sup>165</sup> They must be “trade exposed.”<sup>166</sup> Consultation must take place as to what is an eligible industrial activity with those affected.<sup>167</sup> A notice will be published in the *Gazette* describing the eligible industrial activity and requiring those carrying out that activity to submit certain information.<sup>168</sup> Those who do not respond will not be eligible for a free allocation.<sup>169</sup> Regulations will be subsequently made for that eligible industrial activity.<sup>170</sup> If an eligible industrial activity, provisional<sup>171</sup> and final allocations<sup>172</sup> can occur if an application is made.<sup>173</sup> If entitled to a free allocation, a free allocation will be given subject to a right to review of an allocation decision.<sup>174</sup> However, where an allocation decision has been made, the decision may be “reconsider[ed], var[ied], or revoke[d]” in rare specified circumstances.<sup>175</sup> Similar provisions apply to agriculture.<sup>176</sup>

## *F Transfer*

Importantly, an account holder can apply to the Registrar to transfer units from that account holder’s holding account to another account in the unit register or an overseas registry. There are specific types of units that cannot be held at all<sup>177</sup> and other specified units with a restriction on transfer.<sup>178</sup> Where possible the Registrar must transfer the specified units as requested subject to a specified procedure. A transaction to issue, transfer, cancel, retire, surrender, convert or replace units must be registered on the unit register.<sup>179</sup> That transaction is registered when the Registrar assigns a registration number and time to the transaction and enters those particulars in the unit register.<sup>180</sup> The transaction will take effect when registered.<sup>181</sup> Where an application for registration of a transaction of an account holder is made the Registrar must “as soon as practicable” process the transactions “in the chronological order in which [such transactions are] received.”<sup>182</sup> In terms of definition, only the Registrar may “issue”,<sup>183</sup> anyone can “transfer” subject to restrictions,<sup>184</sup> anyone may “surrender” a unit to meet its obligations,<sup>185</sup> anyone may “cancel” a unit,<sup>186</sup> only the

<sup>165</sup> CCRA 2002, s 161A(3)(a)(i).

<sup>166</sup> CCRA 2002, s 161A(3)(a)(ii).

<sup>167</sup> CCRA 2002, s 161F(2).

<sup>168</sup> CCRA 2002, s 161D.

<sup>169</sup> CCRA 2002, s 161D(7).

<sup>170</sup> CCRA 2002, s 161A.

<sup>171</sup> CCRA 2002, s 81.

<sup>172</sup> CCRA 2002, s 82(2).

<sup>173</sup> CCRA 2002, s 86.

<sup>174</sup> CCRA 2002, ss 86B and 144.

<sup>175</sup> CCRA 2002, s 86C.

<sup>176</sup> CCRA 2002, s 85.

<sup>177</sup> Climate Change (Unit Register) Regulations 2008, reg 9-10.

<sup>178</sup> Climate Change (Unit Register) Regulations 2008, reg 11.

<sup>179</sup> CCRA 2002, s 20.

<sup>180</sup> CCRA 2002, s 22.

<sup>181</sup> CCRA 2002, s 22.

<sup>182</sup> CCRA 2002, s 24.

<sup>183</sup> CCRA 2002, ss 10(2)(a)(i) and 12.

<sup>184</sup> CCRA 2002, s 18C.

<sup>185</sup> CCRA 2002, s 18CA(3) and (4).

government can “retire” units,<sup>187</sup> and the Registrar may “convert” NZUs into AAUs for overseas sale.<sup>188</sup> The term “replace” and “expires” generally refer to the complex system of CERs in the NZETS.<sup>189</sup>

#### *G Transmission*

There are detailed provisions relating to transactions involving post-1989 forest land under the NZETS.<sup>190</sup> For post-1989 forestry, landowners and those that hold a registered forestry right or a lease registered in respect of that land must both agree in a written agreement as to who is to be registered under the NZETS for registration to take effect.<sup>191</sup> As seen above, pre-1990 forest land, post-1990 forest land, or exempt land is noted on the relevant land record, register, or deeds index.<sup>192</sup> For transactions s 192 allows transmission from a transferor and transferee on a date of transmission.<sup>193</sup> A transferee would be well advised to request all emissions returns and the “unit balance” of each carbon accounting area applicable.<sup>194</sup> This enables the transferee to determine outstanding liabilities and entitlements and the amount of any contingent liability assumed on becoming participant. The transferor must submit an emissions return to the EPA within 20 working days of the transferee becoming the participant to enable all entitlements and liabilities to be brought up to date.<sup>195</sup> The transferor could, of course, remove the post-1989 forest land from the NZETS altogether prior to sale.<sup>196</sup> The purchase price would reflect such NZETS entitlements or liabilities.

#### *H Offences and Penalties*

The NZETS in harmony with the taxation system relies on self-assessment. An analogy with the provisions of the Tax Administration Act 1994, therefore, is inevitable. Under the CCRA 2002, enforcement officers are appointed which may require any person by notice to provide “any information [to ascertain] whether a person is complying... with the [Act].”<sup>197</sup> The EPA or chief executive may require a person to appear before him or her to provide information.<sup>198</sup> If the EPA or chief executive wishes, they may request a District Court to hold an inquiry for the purposes of obtaining information.<sup>199</sup> An enforcement officer

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<sup>186</sup> CCRA 2002, s 18CA(1).

<sup>187</sup> CCRA 2002, s 18CA(2).

<sup>188</sup> CCRA 2002, s 18CA(5).

<sup>189</sup> CCRA 2002, ss 30B-30D.

<sup>190</sup> CCRA 2002, s 192.

<sup>191</sup> CCRA 2002, s 187(1).

<sup>192</sup> CCRA 2002, s 195.

<sup>193</sup> CCRA 2002, s192(2).

<sup>194</sup> CCRA 2002, s 194(2).

<sup>195</sup> Cameron, above n 67, at 440; CCRA 2002, ss 188(2)(c), 193(3)-(4) and 193(1).

<sup>196</sup> CCRA 2002, s 191(1)-(2).

<sup>197</sup> CCRA 2002, s 94(1).

<sup>198</sup> CCRA 2002, s 95.

<sup>199</sup> CCRA 2002, s 96.

may also enter land or premises with reasonable notice,<sup>200</sup> or obtain a warrant if expediency is required.<sup>201</sup> While on the land or premises, they may require documentation, take samples, and carry out investigations. Various offences attach to failure to comply involving terms of imprisonment and/or associated fines.<sup>202</sup> Where an emissions return is incorrect, an amendment may be found to be necessary.<sup>203</sup> Where a participant does not submit an emissions return or where there is a failure to register as a participant requiring an emissions return, an assessment of the emission's return is to be made.<sup>204</sup> Various offences attach to non-compliance, the most significant of which is a mere innocent mistake requires "an excess emissions penalty of \$30 for each unit... the person fails to surrender[, or repay]"<sup>205</sup> in addition to "surrender[ing] or repay[ing] the units required [under the Act]."<sup>206</sup>

## *I Fraud*

Emissions trading is based on the infallibility of an internet platform. Like any personal property, an emissions unit is worth money and is capable of forgery or being stolen. While emissions units can be lost by internet viruses, server faults, and data loss, fraud remains a predominant concern. In 2010, the European Union Emissions Trading Scheme was undermined when malicious emails were received by users redirecting them to a fake Emissions Trading Scheme website to input their username and password details.<sup>207</sup> Despite many jurisdictions suspending their emissions registries, over 250,000 emissions units were stolen.<sup>208</sup> In New Zealand, there is little doubt that any person engaging in such activity would be liable for a criminal offence under the Crimes Act 1961.<sup>209</sup> The Registrar would of course exercise the power to suspend the Registry under s 13 of the CCRA 2002.<sup>210</sup>

An important question concerns who would bear the cost of fraud in the event that the money was never recovered. This would come down to whether a NZU is tangible (chose in possession) or intangible property (chose in action) in the tort of conversion. In the SA 1978 an emissions unit is defined within the definition of a tangible "chattel" whereas under the PPSA 1999 an emissions unit is an intangible "investment security."<sup>211</sup> Section 15 of the CCRA 2002 means that the Registrar may "allocate a unique serial number to (i) a New Zealand unit."<sup>212</sup> If a unique serial number can trace the eventual sale of the NZU, the tort of

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<sup>200</sup> CCRA 2002, s 100.

<sup>201</sup> CCRA 2002, s 101.

<sup>202</sup> CCRA 2002, s 129-133.

<sup>203</sup> CCRA 2002, s 120.

<sup>204</sup> CCRA 2002, s 121.

<sup>205</sup> CCRA 2002, s 134(2)(b).

<sup>206</sup> CCRA 2002, s 134(2)(a).

<sup>207</sup> Durrant, above n 19, at 67.

<sup>208</sup> Cameron, above n 67, at 405.

<sup>209</sup> Crimes Act 1961, ss 218, 228 and 249.

<sup>210</sup> CCRA 2002, s 13.

<sup>211</sup> SA 1978, s 2, definition of "chattel"; PPSA 1999, s 16 definition of "investment security".

<sup>212</sup> CCRA 2002, s 15.



conversion would indicate that the eventual buyer of the tangible property who buys an ineffectual title under the *nemo dat* rule would be liable for conversion of the tangible goods to the person who has good title.<sup>213</sup> Intangible property is incapable of conversion because the law of torts is reluctant to compensate pure financial loss.<sup>214</sup> An exception applies if there is interference with a document that embodies or evidences the intangible property.<sup>215</sup> Here, the question of whether an emissions unit is seen as tangible or intangible seems moot. Given an extensive market and the fact that emissions units could be evidenced in documentary form,<sup>216</sup> the tort of conversion would seem appropriate. The contrary argument would be that emissions units do not exist without the electronic format. It is an invented creature of cyberspace and is detached from its environmental benefits. Hence, consistent with internet banking fraud, liability could fall onto the consumer due to the customer's own negligence.<sup>217</sup>

## *VI Personal Property Securities Act 1999*

Due to its definition as an investment security under the PPSA 1999, an emissions unit is capable of acting as security in the same way as “a futures contract, or a warrant or option or share, right to participate, or other interest in property or an enterprise.”<sup>218</sup> For the purposes of the PPSA 1999, a creditor will obtain a security interest over a debtor's emissions unit when a security agreement is signed by the creditor and debtor. The security interest will be perfected and therefore enforceable against third parties once the creditor has taken possession of the emissions unit. Section 18(1A) of the PPSA 1999 states that if an emissions unit is evidenced by a certificate, possession requires physical possession of that certificate. If the emissions unit is traded or settled through a clearing house or securities depository, the clearing house or securities depository must record an interest in the emissions unit. If the emissions unit is held by a nominee, the nominee must record an interest in the emissions unit. If the emissions unit is of the CCRA 2002 nature, the CCRA 2002's unit registry must record the possession of the unit. Section 18(1A)(e) of the PPSA 1999 provides a catch-all which means that if “a person who is responsible for recording the holders of emissions units... record[s] that interest... in the emissions unit” such is sufficient for possession.<sup>219</sup>

As Cameron notes, for possession in the CCRA 2002 context the account holder must consent to the creditor's name being recorded as having possession of the units and the account holder cannot transfer any emissions units out of the holding account without the

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<sup>213</sup> Cynthia Hawes “Tortious Interference with Goods in New Zealand: The Law of Conversion, Detinue and Trespass” (Phd Thesis, University of Canterbury, 2010) at 119-120 and 234.

<sup>214</sup> *OBG Ltd v Allan* [2007] 4 All ER 545 (HL) at [99].

<sup>215</sup> At [102]-[105].

<sup>216</sup> CCRA 2002, s 29.

<sup>217</sup> New Zealand Bankers' Association “Code of Banking Practice” (4<sup>th</sup> ed, 2007) at 32-37 <[www.nzba.org.nz](http://www.nzba.org.nz)>; Roger Clarke and Alana Maurushat “Passing the Buck: Who Will Bear the Financial Transaction Losses from Consumer Device Insecurity” (2007) 18 J L Inf & Sci 8 at 10.

<sup>218</sup> PPSA 1999, s 16, definition of “investment security”.

<sup>219</sup> PPSA 1999, s 18(1A)(e).

consent of the creditor.<sup>220</sup> Despite this, the creditor “may not use the holding account for the purposes of making a transaction.”<sup>221</sup> Where the debtor and the creditor are in agreement to sell the emissions units in accordance with the securities agreement, no real problem arises.<sup>222</sup> This means that under s 97 of the PPSA 1999, if any person who gives value, takes possession, and has no knowledge of a particular security interest, that person is entitled to priority over that of the security interest. If that purchaser knew that the purchase would breach any security agreement, such knowledge disentitles the purchaser from taking priority. Cameron provides sound advice that the enforcement provisions under the PPSA 1999 when a debtor defaults on its repayment obligations may prove insufficient and therefore any security agreement should specify that in the event of default the creditor can require the debtor to transfer the emissions units into its own holding account.<sup>223</sup>

## *VII Securities Act 1978 and Securities Markets Act 1988*

The SA 1978 is designed to ensure that any offer of securities to the public for subscription will be made by way of an investment statement or a registered prospectus. Investors are to rely on these documents for authoritative information. There are exemptions from the Act including “[a]ny proprietary rights to chattels”<sup>224</sup> such as livestock and emissions units.<sup>225</sup> Another significant exemption is estates or interests in land. Where such chattels or estates or interest in land form part of a contributory scheme in which the number of investors is more than five and there is a manager of the scheme, the exemption from the Act does not apply. While the SA 1978 deals with the primary market of fundraising, the SMA 1988 concerns the secondary market of trading securities, price setting and the prevention of market abuse. The SMA 1988 defines emissions units as a commodity as “any type of goods; and includes foreign currency, a financial instrument, and emissions units.”<sup>226</sup> This flows into the definition of futures contracts. Such a futures contract may specify a “price which is fixed” or “an obligation to pay a sum of money” for a “specified commodity” at “a specified future time” or “a future date.”<sup>227</sup> Transactions settled in cash involving the future sale of emissions units are likely to be future contracts to which the SMA 1988 future dealers regime applies although merely “the physical delivery of emissions units” would not seem to fall under the definition.<sup>228</sup>

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<sup>220</sup> Cameron, above 67, at 444; PPSA 1999, s 18(1A); Climate Change (Unit Register) Regulations 2008, reg 18-19.

<sup>221</sup> Climate Change (Unit Register) Regulations 2008, reg 19.

<sup>222</sup> PPSA 1999, s 48.

<sup>223</sup> Cameron, above n 67, at 445.

<sup>224</sup> SA 1978, s 5.

<sup>225</sup> SA 1978, s 2, definition of “chattel”.

<sup>226</sup> SMA 1988, s 37(1), definition of “commodity”.

<sup>227</sup> SMA 1988, s 37(1)(a) and (b), definition of “futures contract”.

<sup>228</sup> Cameron, above n 67, at 421.

## VIII Income Tax Act 2007

Emissions units are generally treated as income which means that taxable deductions are created. Where there is taxable income, such income may be recognised “on an accruals basis [meaning] a tax liability does not arise immediately on allocation of the [emissions units], but is treated as arising on an emerging basis over the period which the allocation relates.”<sup>229</sup> On the disposal of an emissions unit, the amount derived is treated as taxable income.<sup>230</sup> Surplus emissions units that are not disposed of will “be added back [to income] at cost at [the financial] year-end to the extent they are still on hand.”<sup>231</sup> However, not all emissions units are treated the same for taxation purposes. This means businesses which hold emissions units from different sources must keep separate “pools” for valuation purposes.<sup>232</sup> As noted previously, pre-1990 forest emissions units and fishing quota emissions units are treated as capital to which no deduction is available. Moreover, no deduction will be available if the acquisition of an emissions unit is free.<sup>233</sup> Nor will a deduction be available for liabilities arising for post-1989 forestry because deduction is achieved with the emissions units being surrendered for liabilities as the sale being for zero dollars.<sup>234</sup> This is better known as “cash basis” accounting rather than “accruals basis” accounting.<sup>235</sup>

The timing of any valuation of emissions units is dependent on its nature which will enable inconsistencies to arise. As Gehring and Streck note, “[t]he newness of [emissions units] has allowed traders to put fantasy numbers into their balance sheets.”<sup>236</sup> Certainly there is the potential for a tax avoidance arrangement to include the elusive emissions unit because they would seem to be inflatable given heterogeneous treatment of emissions units and being generally being a deductible expense. An example of a related tax avoidance arrangement in the context of forestry is *Ben Nevis Forestry Ventures v Commissioner of Inland Revenue* which involved a Douglas Fir forest with a 50 year rotation cycle having complex licence agreements and insurance arrangements.<sup>237</sup> Nevertheless, the law of tax avoidance will cover such situations as the drawing of “bright-line rules [are] undesirable and impractical in taxation law.”<sup>238</sup> Anti-avoidance provisions are designed to “thwart technically correct but contrived transactions set up as a means of exploiting the [ITA 2007] for tax advantages.”<sup>239</sup>

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<sup>229</sup> Ernst and Young, above n 110, at 10.

<sup>230</sup> ITA 2007, s CB 36(2).

<sup>231</sup> ITA 2007, s CH 1(4); Inland Revenue Department “Other Policy Matters: Tax Treatment of Transactions in Emissions Units” (2009) 21(8) Part II Tax Information Bulletin 94 at 95.

<sup>232</sup> ITA 2007, s ED1.

<sup>233</sup> ITA 2007, s DB 60.

<sup>234</sup> ITA 2007, s CB 36(4).

<sup>235</sup> Inland Revenue Department “Other Policy Matters”, above n 231, at 95.

<sup>236</sup> Gehring and Streck, above n 55, at 10230.

<sup>237</sup> *Ben Nevis Forestry Ventures v Commissioner of Inland Revenue* [2009] 2 NZLR 289 (SC).

<sup>238</sup> *Commissioner of Inland Revenue v Penny and Hooper* [2010] NZCA 231 at [162].

<sup>239</sup> *Penny and Hooper v Commissioner of Inland Revenue* [2011] NZSC 95 at [47].

## *IX Death and the Insolvency Process*

The question arises as to the extent to which an emissions unit survives the account holder. If an account holder is a natural person and dies or is not a natural person but is wound up, liquidated, dissolved or otherwise ceases to exist then the account holder's personal representative may operate the holding account until a successor is determined and the Registrar registers the successor as the account holder.<sup>240</sup> There is also provision<sup>241</sup> for those involved in an insolvency process such as receivership,<sup>242</sup> liquidation<sup>243</sup> or bankruptcy.<sup>244</sup> If a participant is required to surrender or repay units and enters into such an insolvency process, the chief executive must purchase or surrender on the person's behalf the required units.<sup>245</sup> The "costs of purchasing the units, and any administrative costs incurred in their surrender or repayment... constitutes an unsecured debt to the Crown."<sup>246</sup> If a participant has emissions units, such emissions units will constitute property which will pass to the Official Assignee, Liquidator, or Receiver.<sup>247</sup>

## *X Conclusion*

This chapter has analysed the legal nature of the NZU. Beyond the politics of whether specific sectors should enter the NZETS and if so the extent of any free allocation of New Zealand units, sits this critical question. The ultimate purpose of the NZU is to reduce greenhouse gas emissions through emissions trading with the NZU representing the avoidance of one tonne of carbon dioxide equivalent emissions. With this, the many questions over the nature of the NZU can begin to be answered. A NZU is unlikely to require compensation for compulsory acquisition because an NZU is held rather than owned. That is, a NZU can never create a right to emit but can only allow its holder to emit. The terms "personal property",<sup>248</sup> "commodity",<sup>249</sup> "chattel",<sup>250</sup> "trading stock"<sup>251</sup> and "good"<sup>252</sup> in this context are preferable to the language of an "interest in land."<sup>253</sup> Although capable of being seen as "revenue",<sup>254</sup> a "financial instrument",<sup>255</sup> or "an investment security"<sup>256</sup> as well as

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<sup>240</sup> CCRA 2002, s 18D.

<sup>241</sup> CCRA 2002, s 159.

<sup>242</sup> Receiverships Act 1993.

<sup>243</sup> Companies Act 1993.

<sup>244</sup> Insolvency Act 2006.

<sup>245</sup> CCRA 2002, s 159.

<sup>246</sup> CCRA 2002, s 159(3).

<sup>247</sup> Insolvency Act 2006, s 3, definition of "property"; Companies Act 1993, s 2; Receiverships Act 1993, s 2.

<sup>248</sup> PPSA 1999, s 16, definition of "emissions units"; SA 1978, s 2; SMA 1988, s 37.

<sup>249</sup> SMA 1988, s 37, definition of "commodity".

<sup>250</sup> SA 1978, s 2, definition of "chattel".

<sup>251</sup> ITA 2007, s EB 2.

<sup>252</sup> GST Act 1985, s 11(1)(o).

<sup>253</sup> SA 1978, s 5.

<sup>254</sup> ITA 2007, s YA1.

<sup>255</sup> SMA 1988, s 37, definition of "commodity".

<sup>256</sup> PPSA 1999, s 16, definition of "investment security".

having the opposing qualities of being “excepted financial arrangements”<sup>257</sup> and “capital”,<sup>258</sup> the term “service”<sup>259</sup> as an avoidance of emissions would seem to be a better encapsulation of the NZU. With the reduction of greenhouse gases at its core, an emissions unit operates in an emissions registry by being held in participants’ holding accounts. Participants may have received a free allocation or are otherwise willing to transfer emissions units to meet its surrender or repayment obligations which if not met are subject to a variety of offences. Accordingly, the function of emissions units under a variety of other statutes entrench the status of emissions units as a statutory created form of personal property ultimately designed to reduce greenhouse gas emissions.

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<sup>257</sup> ITA 2007, s EW 5.

<sup>258</sup> ITA 2007, ss CD44(18), BD1 and CX 51B - CX51C.

<sup>259</sup> GST Act 1985, ss 11A(1)(s)- 11A(1)(w).

## Chapter 5

### The Business of Climate Change

[T]he largest contributors to [greenhouse gas] emissions are corporations

Kathryn Douglass<sup>1</sup>

#### *I Introduction*

This chapter will analyse how businesses are beginning to drive reductions in greenhouse gases emissions in a quest for sustainable market opportunities.<sup>2</sup> Traditionally, private enterprises eschew governmental control and emissions trading is usually presented as anathema to business. However, shareholders, creditors, insurance agents, and employees aware of climate change risks are reaping reliable returns in a low carbon world. The leading change comes from investors who perceive soaring risk in high carbon portfolios. Businesses have taken to reducing greenhouse gases in an effort to avoid strict regulation, strengthen customer loyalty, access talented employees, create a competitive advantage as well as enhance business relationships. These measures have been achieved alongside efforts to increase corporate disclosure of greenhouse gas emissions and the financial reporting of climate change risks. These challenges are incorporated into directors' duties either through the duty of care, skill and diligence or the stricter test of a duty to act in the best interests of the company. Shareholders have, therefore, been active in prompting directors into action. Against this background, though, businesses have had to be careful of greenwash. These are representations that present unsubstantiated carbon neutral claims. To be effective, if businesses are to adopt carbon neutrality such businesses must not misinform consumers or the market. With accurate information, however, the market can reduce greenhouse gases by supporting businesses which have transformed climate change risks into opportunities.

#### *II The Business of Climate Change*

Companies face a plethora of climate change risks. The most obvious risk is physical. The effects of climate change are likely to include rising sea levels threatening coasts, ocean acidification affecting fish, and an increase in extreme weather events such as droughts, bushfires, floods, cyclones and hurricanes. Corporations which operate in agriculture,

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<sup>1</sup> Kathryn Douglass "Add One to the Arsenal: Corporate Securities Laws in the Fight to Slow Global Warming" (2009) 13 Lewis & Clark L Rev 1119 at 1120.

<sup>2</sup> Andy Britton and Raechel Cummins "Business Opportunities and Global Climate Change" (2002) New Zealand Business Council for Sustainable Development <[www.nzbcsc.org.nz](http://www.nzbcsc.org.nz)>; Rory Sullivan (ed) *Corporate Responses to Climate Change* (Greenleaf Publishing Ltd, Sheffield, 2008) at 3; Bob Frame, Richard Gordon and Ian Turney "The Emissions / Biodiversity Exchange: A Corporate Sustainable Development Programme in New Zealand" in Kathryn Begg, Frans van der Woerd and David Levy (ed) *The Business of Climate Change: Corporate Responses to Kyoto* (Greenleaf Publishing, Sheffield, 2005) 231 at 239; Prue Taylor "The Business of Climate Change: What's Ethics Got to Do with It?" (2007) 20 PMGBDLJ 161 at 182.

forestry, fisheries, property, insurance and tourism sectors will be appreciably affected.<sup>3</sup> Secondly, the emergence of emissions trading through the CCRA 2002 presents a regulatory risk to New Zealand corporations. NZETS participant obligations include the monitoring and reporting of emissions as well as the holding, transferring, surrendering, and cancelling of emissions units. Thirdly, a derivative risk is insurance. When insurance becomes too expensive, or is withdrawn, previously insured activities may lead to insolvency or bankruptcy.<sup>4</sup> It has even been mooted that insurance companies may withdraw liability insurance for directors of companies that do not have adequate climate change risk policies.<sup>5</sup> Fourthly, climate change litigation has developed as a systematic method of reducing greenhouse gas emissions which may affect private corporations. Fifthly, there is the market risk that a company's competitor will maintain customer loyalty if customers prefer the competitor's position on climate change. Those that fail to consider the higher operating costs, reduced profit margins, lower growth forecasts, damaged reputation and compromised customer loyalty engendered by greenhouse gas emissions without capitalising on potential opportunities place themselves at an economic disadvantage.<sup>6</sup> Sixthly, capital risk means that companies may be unable to obtain capital because financial institutions are concerned about climate change risk. Financial institutions are becoming wary as financing decisions "which result in harm to society or the environment will ultimately affect shareholder value."<sup>7</sup>

Capital climate change risk is the driver of change in the financial services market through a number of international voluntary codes. The Equator Principles (designed in conjunction with the World Bank and the International Financial Corporation)<sup>8</sup> are designed primarily for activities in developing countries and now these principles apply to 85 per cent of the world's financing of cross-border projects.<sup>9</sup> Projects worth over USD 10 million are screened into environmental risk categories. High impact projects require a comprehensive assessment of environmental effects. This can include a project's quantification, monitoring and managing of greenhouse gas emissions.<sup>10</sup> In 2006, some signatories to the Principles

<sup>3</sup> Susan Shearing "Climate Governance and Corporations: Changing the Way 'Business does Business'?" in Rosemary Lyster (ed) *In the Wilds of Climate Law* (Australian Academic Press, Bowen Hills, 2010) 175 at 177.

<sup>4</sup> Greenpeace "Climate Risk: Understanding the Financial Risk that Climate Change Presents to New Zealand Companies" (June 2007) <[www.greenpeace.org](http://www.greenpeace.org)> at 6.

<sup>5</sup> Christina Ross, Evan Mills and Sean Hecht "Limiting Liability in the Greenhouse: Insurance Risk-Management Strategies in the Context of Global Climate Change" (2007) 26A Stan Env'tl L J 251 at 270.

<sup>6</sup> Riccardo Troiano "Climate Change: Corporate Liability, Disclosure Requirements and Shareholders' Remedies" (2008) 26 C&SLJ 418 at 418.

<sup>7</sup> Anne Durie and Laura Horn "Sustainability Reporting: The Role of Financial Institutions" (2009) 37 ABLR 342 at 342.

<sup>8</sup> Equator Principles Association "About the Equator Principles" (2012) <[www.equator-principles.com/index.php/about-the-equator-principles](http://www.equator-principles.com/index.php/about-the-equator-principles)>.

<sup>9</sup> Durie and Horn, above n 7, at 351.

<sup>10</sup> Megan Bowman "The Role of the Banking Industry in Facilitating Climate Change Mitigation and the Transition to a Low-Carbon Global Economy" (2010) 27 EPLJ 448 at 457; See generally Jennifer Gleason and David Hunter "Bringing Climate Change Claims to the Accountability Mechanisms of International Financial Institutions" in William Burns and Hari Osofsky (ed) *Adjudicating Climate Change: State, National and International Approaches* (Cambridge University Press, New York, 2009) 292.

withdrew funding and assurances relating to the Sakhalin II oil and gas pipeline project in Russia in part due to environmental concerns.<sup>11</sup> Additionally, the United Nations Global Compact aims to build sustainable markets.<sup>12</sup> It seeks to promote greater environmental responsibility through corporate sustainability reporting. The United Nations Environment Programme Finance Initiative has produced Guidelines for Sustainability Management and Reporting which enhance reporting of non-financial information for stakeholders.<sup>13</sup> Moreover, the United Nations Principles of Responsible Investment is a framework designed for institutional investors to fulfil fiduciary duties to act in the long term interests of beneficiaries by incorporating into the investment process environmental, social and governance analysis.<sup>14</sup> Similarly, the OECD Guidelines for Multinational Enterprises as an annex to the OECD International Declaration on International Investment and Multinational Enterprises details responsible business conduct to promote sustainability in international investment law.<sup>15</sup>

Climate change capital risk is being pushed by the integration of international investment law and sustainable development. The New Zealand Business Council for Sustainable Development recognises that the entrenchment of short-term results through hyper-competition creates unpredictability and by taking into account social and environmental considerations a greater level of investment security is assured. Sustainable development is about achieving a balance between economic, social and environmental concerns to provide for present and future generations. In this light, sustainable development requires companies to make money for shareholders.<sup>16</sup> Uneconomic activity is, by definition, unsustainable. A legislative requirement is found in s 58 of the New Zealand Superannuation and Retirement Income Act 2001 which provides for investment on a prudent, commercial basis consistent with “best-practice portfolio management”, “maximising return without undue risk to the fund as a whole” and “avoiding prejudice to New Zealand’s reputation as a responsible member of the world community.”<sup>17</sup> With these objectives, the fund has become a signatory to international documents described above.<sup>18</sup> Likewise, s 4 of the State-Owned Enterprises Act 1986 provides that the principal objective of every state-owned enterprise is to operate as a successful business which is “profitable and efficient” in order to be a “good employer” in a way which the organisation “exhibits a sense of social responsibility by

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<sup>11</sup> Durie and Horn, above n 7, at 352.

<sup>12</sup> At 349.

<sup>13</sup> At 354.

<sup>14</sup> At 354.

<sup>15</sup> At 356.

<sup>16</sup> James McConvill and Martin Joy “The Interaction of Directors’ Duties and Sustainable Development in Australia: Setting Off on the Uncharted Road” (2003) 26 MULR 116 at 137.

<sup>17</sup> New Zealand Superannuation and Retirement Income Act 2001, s 58; Doug Tennent “Ethical Investment in Superannuation Funds: Can it Occur Without Breaching Traditional Trust Principles?” (2009) 17 Waikato L Rev 98 at 109-113; Scott McDonald and Nicholas Taylor “Does “Sustainable” Investing Compromise the Obligations Owed by Superannuation Trustees?” (2008) 36 ABLR 47.

<sup>18</sup> New Zealand Superannuation Fund “Responsible Investment Framework” (2012) <[www.nzsuperfund.co.nz](http://www.nzsuperfund.co.nz)>.



having regard to the interests of the community in which it operates and by endeavouring to accommodate or encourage” such interests.<sup>19</sup> The consideration of non-financial factors by quangos (quasi-autonomous non-governmental organisations) represents indirect governmental pressure to focus on long-term economic performance. Such requirements have not translated into provisions for private enterprises to consider non-financial performance in the Companies Act 1993 despite reforms in the United Kingdom<sup>20</sup> requiring greater legislative deference to be given to stakeholders as well as calls for reconsideration here.<sup>21</sup>

A variety of international organisations are exerting pressure. The most prominent are non-governmental organisations such as Friends of the Earth, the World Wildlife Fund (WWF), and Greenpeace in advocating addressing climate change risks. Less well known groups such as the Institutional Investor Group on Climate Change (IIGCC) have formed to act as a collaborative forum for investors such as superannuation funds and asset managers to assess climate change risk.<sup>22</sup> Additionally, the Coalition for Environmentally Responsible Economies (CERES) is a coalition of investors and public interest groups to integrate sustainability into the day to day business practices for the health of the planet and its people.<sup>23</sup> Its subsidiary, the Investor Network on Climate Risk, aims to tackle the corporate governance challenges of climate change.<sup>24</sup> For present purposes, the Climate Principles and the Carbon Principles are particularly relevant.<sup>25</sup> These integrate climate change into business activities to reduce risks and enhance opportunities with the latter principles being signed by the Bank of America, Citi, Credit Suisse, JP Morgan Chase, Morgan Stanley and Well Fargo in 2008.<sup>26</sup> The Carbon Principles were a response to uncertain climate change policy and encourage “cost-effective energy efficiency, renewable energy and other low carbon alternatives to conventional generation, taking into consideration the potential value of avoided [greenhouse gas] emissions.”<sup>27</sup> Although these developments are legally non-binding, such developments seem to inform the standard of what a reasonable director ought to do to address climate change business risk.

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<sup>19</sup> State-Owned Enterprises Act 1986, s 4; *New Zealand Maori Council v Attorney-General* [1994] 1 NZLR 513 (PC) at 519; Compare: *Auckland Electric Power Board v Electricity Corporation of New Zealand* [1994] 1 NZLR 551(CA) at 560.

<sup>20</sup> Companies Act 2006 (UK), s 172.

<sup>21</sup> Richard Annandale “Sustainable Shareholder Value: A Period of Enlightenment for New Zealand?” (2008) 16 *Waikato L Rev* 291 at 307.

<sup>22</sup> Institutional Investor Group on Climate Change “About Us” (2012) <[www.iigcc.org/about-us](http://www.iigcc.org/about-us)>.

<sup>23</sup> Coalition for Environmentally Responsible Economies “Who We Are” (2012) <[www.ceres.org/about-us/who-we-are](http://www.ceres.org/about-us/who-we-are)>.

<sup>24</sup> Investor Network on Climate Risk “About INCR” (2012) <[www.ceres.org/incr/about](http://www.ceres.org/incr/about)>; Ans Kolk, David Levy and Jonatan Pinkse “Corporate Responses in an Emerging Climate Regime: The Institutionalization and Commensuration of Carbon Disclosure” (2008) 17 (4) *European Accounting Review* 719 at 725.

<sup>25</sup> The Climate Group “The Climate Principles” (2012) <[www.theclimategroup.org/programs/the-climate-principles/](http://www.theclimategroup.org/programs/the-climate-principles/)>; The Carbon Principles “The Carbon Principles” (2012) <<http://carbonprinciples.org>>.

<sup>26</sup> Bowman, above n 10, at 457.

<sup>27</sup> The Carbon Principles, above n 25.

There are, naturally, many variants to corporate governance models which include non-financial imperatives. Corporate social responsibility advocates that “with power comes responsibility. The unprecedented reach, scale and complexity of modern corporations has rendered obsolete that they are somehow separate and removed from the larger community.”<sup>28</sup> There is a strong business case for corporate social responsibility models of wealth creation by reducing risk through the avoidance of strict regulation, accessing a broader employee talent pool, strengthening customer loyalty, creating a competitive advantage thereby increasing market share as well as enhancing relationships with financiers, insurers, and supply networks that are attracted to such corporate principles.<sup>29</sup> The need for corporate social responsibility is present in *The Corporation: The Pathological Pursuit of Profit and Power* where Bakan argues that a purely profit driven motive results in companies acting similar to a psychopath.<sup>30</sup> Despite these concerns, Watts argues that corporate social responsibility is undemocratic and socialist.<sup>31</sup> Yet, a company may have more influence in a region than any legislature. Some regions concerns may never be heard at all by the legislature or by the company. The environment is, after all, an involuntary non-anthropogenic stakeholder.<sup>32</sup> In terms of socialism if the legislature is prepared for its own corporations to feature corporate social responsibility characteristics, a logical extension is for all corporations to be held to such conduct. The public / private divide is hardly exacting but is a matter of perspective.<sup>33</sup> Moreover, the relationship between fiduciary obligations and climate change is emerging.<sup>34</sup> Thus if stakeholder considerations were to be mandated, it is preferable for other interests to be considered in permissive rather than mandatory terms.<sup>35</sup>

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<sup>28</sup> N Purcell, Group General Manager, Westpac Banking Corporation “Climate Change or Business Change – The Case for the Sustainable Business Model” (Speech at the 2007 CPA Australia Centering on Excellence Conference, Sydney, 22-24 May 2007) as cited by David Hodgkinson and Renee Garner *Global Climate Change: Australian Law and Policy* (LexisNexis Butterworths, Chatswood, 2008) at 342.

<sup>29</sup> Archie Carroll and Kareem Shabana “The Business Case for Corporate Social Responsibility: A Review of Concepts, Research and Practice” (2010) 12 (1) IJMR 85 at 101-102.

<sup>30</sup> Joel Bakan *The Corporation: The Pathological Pursuit of Profit and Power* (New York, Free Press, 2004); Mark Stallworthy “Sustainability, the Environment and the Role of UK Corporations” (2006) 17 (6) ICCLR 155 at 159.

<sup>31</sup> Peter Watts *Directors’ Powers and Duties* (LexisNexis NZ, Wellington, 2009) at 139- 140; Peter Watts “The Attempt to Nationalise the Company – Introducing “Stakeholder” Ideology into the Foundations of Company Law” [2005] CSLB 103.

<sup>32</sup> Annandale, above n 21, at 299; David Ong “The Impact of Environmental Law on Corporate Governance: International and Comparative Perspectives” (2001) 12 (4) EJIL 685 at 689.

<sup>33</sup> Philip Joseph *Constitutional & Administrative Law in New Zealand* (3<sup>rd</sup> ed, Thomson Brookers, Wellington, 2007) at 837-848.

<sup>34</sup> Ken Coghill, Charles Sampford and Tim Smith *Fiduciary Duty and the Atmospheric Trust* (Farnham, Ashgate Publishing Ltd, 2012); Perry Wallace “Climate Change, Fiduciary Duty, and Corporate Disclosure: Are Things Heating Up in the Boardroom?” (2008) Va Env’tl L J 293 at 322; Bradley Cosman “Green Derivatives: Extorting Reductions in Greenhouse Gas Emissions via Shareholder Derivative Suits” (2008) 40 Ariz St L J 743 at 756; Perry Wallace “Climate Change, Corporate Strategy, and Corporate Law Duties” (2009) 44 (3) Wake For L Rev 757 at 760.

<sup>35</sup> Watts “The Attempt to Nationalise the Company”, above n 31, at 105-106.

### *III Disclosure of Corporate Greenhouse Gas Emissions*

Mandatory information disclosure is among the most cost-effective environmental tools.<sup>36</sup> The United States Toxic Release Inventory is a prominent example of how regulation by revelation can be achieved. Firms are required to disclose specified toxic releases into the environment.<sup>37</sup> If companies' emissions are disclosed and compared with competitors, the information serves to stigmatise environmental harm. Companies which demonstrate a good environmental programme are accordingly rewarded by the market. If such disclosure was to be adopted, standardisation and transparency are essential as such reporting can be misleading to consumers. The Carbon Disclosure Project aims to overcome such difficulties and encourages businesses to report voluntarily greenhouse gas emissions, disclose the aims of the business to reduce greenhouse gas emissions and consider how low carbon business opportunities are adopted.<sup>38</sup> In 2011, 42 per cent of the top 50 New Zealand companies answered the Carbon Disclosure Project questionnaire which compares unfavourably with the 68 per cent of the top 500 United States companies.<sup>39</sup> Problematically, only 45 per cent of the New Zealand respondents saw regulatory opportunities out of climate change which is the lowest of all countries surveyed.<sup>40</sup> In the United Kingdom, disclosure of greenhouse gas emissions is recognised by s 85 of the Climate Change Act 2008 (UK) which has the potential to introduce mandatory greenhouse reporting if the Secretary of State introduces regulations to require "such information as may be specified in the regulations about emissions of greenhouse gases from activities for which the company is responsible."<sup>41</sup>

Corporate greenhouse gas disclosure is frequently associated with the subpoena of five energy companies by the Attorney-General in New York State in 2007.<sup>42</sup> This investigated whether investors were being properly informed about the financial risks posed by the company's large greenhouse gas emissions. The Attorney-General cited that no disclosure of projected greenhouse gas emissions from activities were reported, there was no attempt to evaluate exposure to anticipated greenhouse gas regulation and other related climate change information had been withheld. In 2008 the Attorney-General settled with one of the companies as it disclosed current emissions, projected emissions, strategies for

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<sup>36</sup> Andrew Schatz "Regulating Greenhouse Gases by Mandatory Information Disclosure" (2008) 26 Va Env'tl L J 335 at 335.

<sup>37</sup> At 337; Emergency Planning and Community Right-to-Know Act 42 USC §11004 (1986); Soo-Yeun Lim "Mandatory Corporate Greenhouse Gas Emissions Disclosure to Encourage Corporate Self-Regulation of Emissions Reductions" (2008) 17 NYU Env'tl L J 854 at 856.

<sup>38</sup> Carbon Disclosure Project "Catalyzing Business and Government Action" (2012) <[www.cdproject.net/en-US/Pages/About-Us.aspx](http://www.cdproject.net/en-US/Pages/About-Us.aspx)>.

<sup>39</sup> Price Waterhouse Coopers "CDP Global 500 Report 2011: Accelerating Low Carbon Growth" Carbon Disclosure Project (2012) <[www.cdproject.net](http://www.cdproject.net)> at 74.

<sup>40</sup> At 74.

<sup>41</sup> Climate Change Act 2008 (UK), s 85; Conor Linehan "Financial and Corporate Disclosure of Climate Change Risk – Its Role and Recent Developments" (paper presented to Law and the Environment Conference, Cork, April 2010).

<sup>42</sup> Graham Erion "The Stock Market to the Rescue? Carbon Disclosure and the Future of Securities-Related Climate Change Litigation" (2009) 18 (2) RECIEL 164 at 168.

managing emissions, the financial risks of present and probable emissions regulations as well as the physical impacts of climate change.<sup>43</sup> Against this background, in 2010 the United States Securities and Exchange Commission issued *Commission Guidance Regarding Disclosure Related to Climate Change*.<sup>44</sup> This guidance related to interpretation of the S-K Regulations which regulate part of the yearly report that publicly traded companies are required to give investors.<sup>45</sup> The regulations require disclosure of a description of the business (Item 101), legal proceedings (Item 103), risks (Item 503(c)), and current trends and uncertainties (Item 303).<sup>46</sup> The guidance reminds “companies of their obligations under existing federal securities laws and regulations to consider climate change and its consequences as they prepare disclosure documents [for] investors.”<sup>47</sup>

Cameron records that “[b]eyond the NZ ETS, there is no positive legal obligation on New Zealand businesses to disclose climate change-related information about their operations.”<sup>48</sup> In Australia, by contrast, s 299(1)(f) of the Corporations Act 2001 (Cth) which provides that a director’s report for a financial year must include details of the entities performance in relation to environmental regulation.<sup>49</sup> This is complemented by provisions in s 299A(1) and s 674.<sup>50</sup> In New Zealand, full prospectuses for equity securities require the description of the activities of the company, specified financial statements, prospects, forecasts, business acquisitions, material contracts, pending proceedings, and other material matters.<sup>51</sup> Requirements for short form prospectuses, simplified disclosure prospectuses, and investment statements have similar but truncated requirements. In terms of continuous disclosure obligations for publicly listed companies, the New Zealand Stock Exchange Listing Rules requires public notification of material information.<sup>52</sup> Material information is information about a company which a reasonable person would expect would have an effect on the company’s share price.<sup>53</sup> This is information that, for instance, changes the company’s

<sup>43</sup> At 168.

<sup>44</sup> Securities and Exchange Commission “Commission Guidance Regarding Disclosure Related to Climate Change” (2010) 75 (25) Federal Register 6290; Jeffrey Smith, Matthew Morreale and Kimberley Drexler “The SEC’s Interpretive Release on Climate Change Disclosure” (2010) 2 CCLR 147; For Canada: Michael Pickersgill and Valerie Chort “Corporate Disclosure” in Dennis Mahony (ed) *The Law of Climate Change in Canada* (Canada Law Book, Toronto, 2010) ch 14.

<sup>45</sup> Jeffrey McFarland “Warming Up to Climate Change Risk Disclosure” (2009) 14 Fordham J Corp & Fin L 281 at 286; Megan Dimitt “Electric Utilities & Climate Risk Disclosure in SEC Filings: Clearing the Air” (2009) 35 (2) J Corp L 449 at 452.

<sup>46</sup> Securities and Exchange Commission “Commission Guidance Regarding Disclosure Related to Climate Change” (2010) 75 (25) Federal Register 6290 at 6293-6294.

<sup>47</sup> At 6297.

<sup>48</sup> Alastair Cameron (ed) *Climate Change Law and Policy in New Zealand* (LexisNexis NZ, Wellington, 2011) at 395.

<sup>49</sup> Corporations Act 2001 (Cth), s 299(1)(f).

<sup>50</sup> Karen Bubna-Litic “Climate Change and Corporate Social Responsibility: The Intersection of Corporate and Environmental Law” (2007) 24 EPLJ 253 at 272.

<sup>51</sup> Securities Regulations 2009, sch 1, cls 8, 10, 12, 17, 18, 23 and 26; Victoria Stace *Securities Law in New Zealand* (LexisNexis NZ, Wellington, 2010).

<sup>52</sup> New Zealand Stock Exchange and New Zealand Debentures Exchange “NZSX and NZDX Listing Rules” (6 August 2010) <[www.nzx.com/market-supervision/rules/nzsx-and-nzdx-listing-rules](http://www.nzx.com/market-supervision/rules/nzsx-and-nzdx-listing-rules)>, r 10.1.

<sup>53</sup> SMA 1988, s 3.

financial forecast or expectation, changes the general nature of the business, and may include acquisitions or dispositions that break a specified threshold.<sup>54</sup> It should be noted here that the mere sale and purchase of emissions units themselves are not subject to Securities Act 1978 but the financial implications of emissions units on equity securities are subject to such requirements.<sup>55</sup> Annual reports of New Zealand companies, publicly listed or otherwise, must include financial statements to be sent to its shareholders.<sup>56</sup> Such reports need to be completed in accordance with Financial Reporting Act 1993.

The manner in which emissions units are reported for accounting purposes has been subject to international debate. In New Zealand, financial statements of a reporting entity must comply with generally accepted accounting practice.<sup>57</sup> The International Accounting Standards Board which standards New Zealand follows created a draft interpretation on emissions units which companies complained “would force them into showing a completely distorted picture of their performance in their annual and interim financial statements” because of the volatility in the emissions trading market.<sup>58</sup> In an attempt to remedy the situation, some accountants stated that if an entity emitted no more than granted emissions units, no cost emerged.<sup>59</sup> Others argued that hedge accounting should be permitted between emissions units and the liability created by surrendering.<sup>60</sup> In this light, Cook reasons that “a grant of assets that are extremely likely to have to be repaid is a liability, notwithstanding that the assets can be used independently in the meantime in market transactions.”<sup>61</sup>

In New Zealand, leading accountant firm Ernst & Young advise that the accounting treatment of emissions units is evolving.<sup>62</sup> If an emissions unit is treated as a government grant, the grant is recognised as income “over the periods necessary to match them with the related costs which they are intended to compensate, on a systematic basis.”<sup>63</sup> A government grant can be valued at fair value or nil.<sup>64</sup> If valued at fair value, the emissions unit will be treated as an intangible asset<sup>65</sup> or if held for resale as inventory,<sup>66</sup> different valuation rules

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<sup>54</sup> New Zealand Stock Exchange and New Zealand Debentures Exchange, above n 52, at 122-123.

<sup>55</sup> SA 1978, ss 2(1) and 5(1)(c).

<sup>56</sup> Companies Act 1993, s 209.

<sup>57</sup> Financial Reporting Act 1993, s 11(1).

<sup>58</sup> Allan Cook “Accounting for Emissions: From Costless Activity to Market Operations” in David Freestone and Charlotte Streck (ed) *Legal Aspects of Carbon Trading: Kyoto, Copenhagen, and Beyond* (Oxford University Press, Oxford, 2009) 59 at 60.

<sup>59</sup> At 64.

<sup>60</sup> At 67.

<sup>61</sup> At 74.

<sup>62</sup> Ernst and Young “A New Wave for New Zealand: Accounting for the New Zealand Emissions Trading Scheme” (2011) <www.ey.com> at 2.

<sup>63</sup> At 6.

<sup>64</sup> At 7.

<sup>65</sup> New Zealand Institute of Chartered Accountants “New Zealand Equivalent to International Accounting Standard 38: Intangible Assets (NZ IAS 38)” (2007) <www.nzica.com>.

<sup>66</sup> New Zealand Institute of Chartered Accountants “New Zealand Equivalent to International Accounting Standard 2: Inventories (NZ IAS 2)” (2009) <www.nzica.com>.

apply. If emissions units are purchased, the intangible asset or inventory rules apply.<sup>67</sup> When emissions units are used for meeting emissions obligations by surrendering emissions units, the accounting treatment follows a contingent liability approach where no liability arises until surrendering is required.<sup>68</sup> This will be when specified activities occur.<sup>69</sup> Before surrendering, the valuation of emissions units can follow the market value approach as advocated by the International Accounting Standards Board in its draft interpretation;<sup>70</sup> the cost of settlement approach where emissions units are valued at fair value as assets as well as the cost of buying any additional emissions units needed;<sup>71</sup> or the net liability approach where emissions units are valued at nil apart from the cost of additional emissions units to settle any liability.<sup>72</sup>

These different accounting tools reflect the innate complexity of disclosing climate risk on the balance sheet. Although disclosure is plainly desirable, disclosing just the financial implications of emissions units in reporting without reference to greenhouse gas emissions can have potentially distorting effects. For instance, when forestry gains emissions units and has to surrender emissions units for deforestation or fire, depending on the accounting method used, there will be an attraction or deterrence of investors. Of course, emissions unit liability is attracted at the time of deforestation even though the release of carbon to the atmosphere may be years if not centuries away.<sup>73</sup> As the carbon market stabilises and full exposure to emissions trading occurs, the accounting treatment of emissions units will be standardised and financial reporting may be more than enough for investor disclosure. Until such time, it is recommended that the transparency of the market would be better served through disclosure of greenhouse gas emissions even though there is currently no legal requirement. While at the present time climate risk could breach the materiality threshold required for disclosure as full exposure to emissions trading takes place, the materiality threshold for disclosure of climate risk will almost continuously be met for high carbon producing companies. The Carbon Disclosure Project has a long road ahead in New Zealand but international investor pressure which requires disclosure of emissions to shareholders is a trend worth encouraging.

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<sup>67</sup> Ernst and Young, above n 62, at 7.

<sup>68</sup> New Zealand Institute of Chartered Accountants “New Zealand Equivalent to International Accounting Standard 37: Provisions, Contingent Liabilities and Contingent Assets (NZ IAS 37)” (2010) <[www.nzica.com](http://www.nzica.com)>.

<sup>69</sup> Ernst and Young, above n 62, at 8.

<sup>70</sup> At 8.

<sup>71</sup> At 9.

<sup>72</sup> At 9.

<sup>73</sup> Laura Cooper and Lisa Daniell “Forestry Sector” in Karen Price and others *Emissions Trading Scheme* (New Zealand Law Society, Wellington, 2011) 11 at 20.

## *IV Directors' Duties*

### *A Duty to Act with Care and Diligence*

Assessment of climate risk which reduces greenhouse gas emissions can also be enforced through directors' duties to a company. Under s 137 of the Companies Act 1993, a director of a company when exercising powers of performing duties as a director, must exercise the care, diligence and skill that a reasonable director would exercise with reference to the nature of the company, the nature of the decision, the position of the director and the nature of any responsibilities undertaken. This independent statutory duty works alongside the duty of care in equity and the common law duty of care in negligence.<sup>74</sup> The duty is owed to the company and not to individual shareholders or third parties.<sup>75</sup> The test has a degree of objectivity as it is one of a reasonable director judged in the same circumstances.<sup>76</sup> The standard of care requires that a reasonable director is informed as to the dealings of the company, to undertake inquiries if relevant, and seek competent advice where prudence is required.<sup>77</sup> While New Zealand does not have a business judgment rule, the preamble to the Companies Act 1993 endorses an allowance to directors of having a wide discretion in matters of business judgment.<sup>78</sup> In this respect, *Daniels v Anderson* elucidates that a director is not an ornament but an essential part of corporate governance.<sup>79</sup> A director must appreciate the effect of a changing economy on business and bring informed and independent judgement to bear on matters that come before the board.<sup>80</sup> The director must become familiar with the fundamentals of the company's business and maintain familiarity with the financial status of the company through a regular review of company financial statements.<sup>81</sup>

It is submitted that an appreciation of climate change risks will require the attention of directors in certain industries. The NZETS's requirements for purchasing and surrendering emissions units for mandatory and voluntary participants will obviously require consideration.<sup>82</sup> For instance, a decision to voluntarily opt-in to the NZETS which is available for forestry and jet fuel purchasers will have financial implications for the company.<sup>83</sup> Even the forestry decision to follow the look-up tables for carbon sequestration of certain age and variety of trees versus adopting a field measurement approach which actually

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<sup>74</sup> *Benton v Priore* [2003] 1 NZLR 564 (HC) at [46]; John Farrar (ed) *Company and Securities Law in New Zealand* (Thomson Brookers, Wellington, 2008) at 385.

<sup>75</sup> Companies Act 1993, s 169(3).

<sup>76</sup> Farrar, above n 74, at 391

<sup>77</sup> *Vrisakis v Australian Securities Commission* (1993) 9 WAR 395 (SC) at 454; *Laws of New Zealand Companies* (online ed) at [196].

<sup>78</sup> Companies Act 1993, preamble.

<sup>79</sup> *Daniels v Anderson* (1995) 118 FLR 248 (NSWCA) at 309.

<sup>80</sup> At 305; *Commonwealth Bank of Australia v Friedrich* (1991) 5 ACSR 115 (VSC) at 117.

<sup>81</sup> At 308-309; *Francis v United Jersey Bank* 432 A 2d 814 (NJ 1981) at 821-823.

<sup>82</sup> CCRA 2002, s 54.

<sup>83</sup> CCRA 2002, s 57.

physically measures the carbon sequestered could have considerable financial implications.<sup>84</sup> Likewise, if an EITE firm fails to apply for a free allocation of emissions units, no emissions units will be allocated with the associated financial repercussions.<sup>85</sup> Businesses would be well advised to undertake careful due diligence when purchasing a business in order to understand emissions trading obligations and liabilities.<sup>86</sup> There are a number of offence and penalty provisions in the CCRA 2002 if mandatory participants fail to comply with these obligations.<sup>87</sup> This can be sheeted home to directors and managers of companies.<sup>88</sup> This includes incorrect monitoring, calculating, and reporting of emissions and removals.<sup>89</sup> Commentators Shearing, Bubna-Litic and Troiano all submit that a breach of duty of care may occur where a director fails to prevent a breach by the company of emissions trading scheme.<sup>90</sup> This could be in addition to any penalty imposed or adverse reputational effects. The self-assessment nature of emissions trading has strong compliance and enforcement mechanisms. Additionally, Shearer submits that a failure to consider climate change risk over and above any emissions trading scheme such as that to long-term infrastructure from climate change impacts may amount to a breach.<sup>91</sup>

If the reward of profit maximisation is greater than the punishment created for a company to break the law, it makes economic sense for a company to break the law and undertake illegal activities. Companies like human beings are persons to which the law applies.<sup>92</sup> If an action is taken by a director which is illegal such action can be attributed to the company or is achieved through “ordinary authority concepts.”<sup>93</sup> The company does not cease to be a legal entity because of the illegal action. Nor is the chain of agency broken by illegal acts.<sup>94</sup> In this way, Watts suggests that s 16 of the Companies Act 1993 “impliedly authorise[s] the board to act illegally.”<sup>95</sup> Watts adds that such authorisation “does not immunise them from their duties to act in the best interest of the company and with due care and skill.”<sup>96</sup> An extension of this argument is that equity follows the law<sup>97</sup> and ignorance of the law is no excuse for undertaking illegal activities.<sup>98</sup> Directors in sophisticated commercial

<sup>84</sup> Climate Change (Forestry Sector) Regulations 2008; Cooper and Daniell, above n 73, at 19.

<sup>85</sup> CCRA 2002, s 86.

<sup>86</sup> Kate Redgewell “Contractual Matters – What to Look out for When Trading Emissions Units or Negotiating Supply Contracts” in Karen Price and others *Emissions Trading Scheme* (New Zealand Law Society, Wellington, 2011) 31 at 41.

<sup>87</sup> CCRA 2002, ss 129-143.

<sup>88</sup> CCRA 2002, s 140.

<sup>89</sup> CCRA 2002, ss 134-138.

<sup>90</sup> Shearing, above n 3, at 181; Bubna-Litic, above n 50 at 265; Troiano, above n 6, at 425 – 426.

<sup>91</sup> Shearing, above n 3, at 182.

<sup>92</sup> Companies Act 1993, ss 15 - 16; Interpretation Act 1999, s 29, definition of “person”.

<sup>93</sup> Watts *Directors’ Powers and Duties*, above n 31, at 68.

<sup>94</sup> *Morgan v Babcock & Wilcox* (1929) 43 CLR 163 (HCA) at 173-174; *Australian Agricultural v Oatmont* (1992) 8 ACSR 255 (NTCA) at 265; *Nathan v Dollars and Sense* [2008] 2 NZLR 557 (SC) at [36]-[42].

<sup>95</sup> Watts *Directors’ Powers and Duties*, above n 31, at 68.

<sup>96</sup> At 68.

<sup>97</sup> Andrew Butler (ed) *Equity and Trusts in New Zealand* (2<sup>nd</sup> ed, Wellington, Thompson Reuters 2009); *Matai Industries Ltd v Jensen* [1989] 1 NZLR 525 (HC).

<sup>98</sup> Crimes Act 1961, s 25.



entities must, of course, be aware of potential legal implications of decisions. Hence to the extent that directors have an option of whether or not to comply with the law, if they act illegally, there will almost certainly be a breach of the duty of care, skill and diligence.<sup>99</sup> That said, a director acting illegally who rewards shareholders and directors handsomely will not find anyone willing to enforce that duty. As environmental penalties can force companies into insolvency,<sup>100</sup> any claimants could subsequently bring proceedings for previous breaches of duties even though it is within directors' powers to act illegally. If it was found that a company could commit illegal acts such as failing to comply with the NZETS with impunity, this would trivialise the true meaning of a director's duty of care to the company.

### *B Duty to Act in Good Faith and In the Best Interests of the Company*

Section 131(1) of the Companies Act 1993 provides that "a director of a company, when exercising powers or performing duties, must act in good faith and in what the director believes to be the best interests of the company."<sup>101</sup> Again, importantly the provision is owed to the company and not to individual shareholders or third parties.<sup>102</sup> The provision has been judicially interpreted to mean disloyalty, mismotivation and protecting against conflicts of interests by directors.<sup>103</sup> Bad faith has been interpreted to mean a "conscious failure to make a genuine attempt to do what a careful director would do."<sup>104</sup> Gross negligence is not sufficient; recklessness may be required; although gross negligence will be treated as evidence of mismotivation.<sup>105</sup> Watts explains that commonly "the offending motivation will be pure self-interest on the part of the relevant director."<sup>106</sup> As long as the director acts in the best interests of the company, directors may favour other interests.<sup>107</sup> The case of *Southern Real Estate v Dellow* is a useful example of a breach of loyalty.<sup>108</sup> Before resigning, a director systematically undermined the business with the aim of setting up a competing business. The director was held to be "acting with manifest conflict of interest."<sup>109</sup>

Acting in the best interests of the company is a controversial phrase for environmental advocates.<sup>110</sup> The reason is that the duty is owed to the company as an independent entity

<sup>99</sup> *Adler v Australian Securities and Investments Commission* [2003] NSWCA 131 at [453] and [529]; *Australian Securities and Investments Commission v Adler* [2002] NSWSC 171 at [372]; Corporations Act 2001 (Cth), s 124(3)(a); Bubna-Litic, above n 50, at 265; Shelley Bielefeld and others "Directors' Duties to the Company and Minority Shareholder Environmental Activism" (2004) 23 C&SLJ 28 at 39.

<sup>100</sup> *Cash for Scrap Ltd v Auckland Regional Council* HC Auckland CIV-2006-404-5501, 21 December 2007.

<sup>101</sup> Companies Act 1993, s 131.

<sup>102</sup> Companies Act 1993, s 169(3).

<sup>103</sup> Watts *Directors' Powers and Duties*, above n 31, at 143-144.

<sup>104</sup> At 146; See *State of South Australia v Marcus Clark* (1996) 19 ACSR 606 (SASC).

<sup>105</sup> At 146 and 158.

<sup>106</sup> At 147.

<sup>107</sup> *Mills v Mills* (1938) 60 CLR 150 (HCA) at 163.

<sup>108</sup> *Southern Real Estate Pty Ltd v Dellow* (2003) 87 SASR 1 (SC).

<sup>109</sup> At 9.

<sup>110</sup> Companies Act 1993, s 131 (1); Mark Brimble, Jenny Stuart and Laura de Zwaan "Climate Change and Financial Regulation: Challenges for the Financial Sector Following the Global Financial Crisis" (2010) 19 Griffith L Rev 71 at 77.

even though judicially shareholders have been held to represent the interests of the company.<sup>111</sup> Treating the shareholders as the company is complicated because not all shareholders will have the same interests. Are directors to consider the interests of all the shareholders, the majority of the shareholders, the minority of shareholders, individual shareholders, past shareholders or even future shareholders? New Zealand has found that the interests of current shareholders as a whole must be considered.<sup>112</sup> In this respect, advocates of the shareholder primacy theory stipulate that consideration of other stakeholders in a company means a duty is owed to no one.<sup>113</sup> However, creditors,<sup>114</sup> employees,<sup>115</sup> and individual shareholders<sup>116</sup> may already be in a fiduciary relationship with the company in specified circumstances. As Palmer observes, “the company’s interests are dynamic, not static.”<sup>117</sup> The proposition that the best interests of the company are only compromised when a director acts in a conflict of interest presents bizarre consequences when investors halt funding; a crown subsidiary issues enforcement proceedings for environmental damage; customers systematically boycott a company’s goods; or a mass resigning of employees takes place. The wording of the provision in light of international developments<sup>118</sup> would suggest that s 131(1) is deliberately openly worded. No references to loyalty or conflict of interest are in s 131(1). Even the archetype of fiduciary duty, the client-lawyer relationship goes further by stipulating that a lawyer “has a duty to act in the best interest of his or her client *without regard for the personal interests of the lawyer*.”<sup>119</sup> Based on commercial expectations, it is doubtful any court would find such arguments convincing without legislative encouragement. Nonetheless, the current wording risks misinterpretation by directors who focus solely on profit and is divorced from the complexities of the modern world.

It is suggested, therefore, that a better understanding of the provision lies in the associated duty of good faith. A disloyal director will hardly be acting bona fide. Shearing asserts that a director’s failure to consider climate risks and opportunities may result in shareholder claims that directors have breached their duty to act in the best interests of the company.<sup>120</sup> Nonetheless, it is submitted that in New Zealand such a breach would only occur in the most egregious of situations. This could involve a habitual breach of emissions trading obligations. Again, if a business blindly situated buildings in areas susceptible to sea level rises there could be a breach. This is because it is still possible to act in good faith even

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<sup>111</sup> Watts *Directors’ Powers and Duties*, above n 31, at 127 – 131.

<sup>112</sup> *Sojourner v Robb* [2006] 3 NZLR 808 (HC) at [18].

<sup>113</sup> Francis Dawson “Acting in the Best Interests of the Company – For Whom are Directors “Trustees”?” (1984) 11 NZLR 68 at 80.

<sup>114</sup> *Sojourner v Robb* [2008] 1 NZLR 751 (CA); *Nicholson v Permakraft* [1985] 1 NZLR 242 (CA).

<sup>115</sup> Companies Act 1993, s 132.

<sup>116</sup> *Coleman v Myers* [1977] 2 NZLR 225 (CA).

<sup>117</sup> Jessica Palmer “Understanding the Director’s Fiduciary Obligation” (2006) 12 NZBLQ 315 at 332.

<sup>118</sup> Durie and Horn, above n 11, at 349-357.

<sup>119</sup> Lawyers and Conveyancers Act (Lawyers: Conduct and Client Care) Rules 2008, r 13.

<sup>120</sup> Shearing, above n 3, at 185.

though incompetence is “virtually certain” to have breached a director’s duty of care.<sup>121</sup> Shearing concludes that climate change “poses important issues for... protecting the long-term viability of the company.”<sup>122</sup> Watts takes the view that as the shareholders can put the company in liquidation that only short-term interests of existing shareholders matter.<sup>123</sup> The preferable view is that of Watson who points out “there is no doubt that directors may at the very least look to the future of the company and the interests of future shareholders.”<sup>124</sup> It may well be in the best interests of future shareholders to liquidate a company. Although evidently tenuous, Troiano even proposes that liquidation on public interest grounds could be used where a company has persistently ignored the impacts of climate change.<sup>125</sup> In any event as Watts recognises, a great deal of latitude is given to directors in carrying out their duties as courts should not run companies worldwide.<sup>126</sup> The words “good faith” set a high standard loyal to the provision without the need to enter the broader shareholder / stakeholder debate.

### C *Enforcement*

As the duties under ss 131 and 137 of the Companies Act 1993 are owed to the company rather than to individual shareholders, only the company may maintain an action against the directors.<sup>127</sup> In order to enable a shareholder or director to enforce such duties, s 165 allows the High Court to grant leave for a shareholder or director to bring proceedings to act in the name of or on behalf of the company.<sup>128</sup> Known as derivative action, the Court in exercising its discretion will have regard to the likelihood of the proceedings succeeding, the costs of the proceedings in relation to the benefit obtained, other possible avenues of relief, and the interests of the company.<sup>129</sup> Leave will only be granted if the Court is satisfied that the company does not intend to bring proceedings itself or that the interests of the company mean that the proceedings should not be left to the directors or the shareholders as a whole.<sup>130</sup> The Court will consider whether a prudent business person would have considered pursuing such a claim.<sup>131</sup> This includes the amount at stake, the apparent strength of the claim, likely costs, and the prospect of executing any judgment.<sup>132</sup> Although this test is usually a strict economic exercise in terms of the benefits to be obtained from litigation, any Court will prefer negotiation, mediation<sup>133</sup> and even arbitration<sup>134</sup> where possible. Even though

<sup>121</sup> *Motorworld Ltd (in liq) v Turners Auctions Ltd* HC Auckland CIV-2007-404-6558, 17 February 2010 at [100].

<sup>122</sup> Shearing, above n 3, at 186.

<sup>123</sup> Watts *Directors’ Powers and Duties*, above n 31, at 130; Companies Act 1993, s 241.

<sup>124</sup> Farrar, above n 74, at 341.

<sup>125</sup> Troiano, above n 6, at 432.

<sup>126</sup> Watts *Directors’ Powers and Duties*, above n 31, at 131-134; *Carlen v Drury* (1812) 35 ER 61 (Ch) at [158].

<sup>127</sup> Companies Act 1993, s 169(3).

<sup>128</sup> Companies Act 1993, s 165(1).

<sup>129</sup> Companies Act 1993, s 165(2).

<sup>130</sup> Companies Act 1993, s 165 (3).

<sup>131</sup> *Vrij v Boyle* [1995] 3 NZLR 763 (HC) at 765.

<sup>132</sup> At 765.

<sup>133</sup> *Tweedie v Packsys Ltd* (2005) 9 NZCLC 263,845 (HC) at [50].

<sup>134</sup> *Torrice v Hayhow* HC Auckland CIV-2003- 485-1995, 14 May 2004 at [29].

deterrence has been mentioned,<sup>135</sup> litigation costs loom large.<sup>136</sup> For carelessness related to climate change risk particularly, litigation must be treated as a last resort. This is because there are more subtle and effective ways to prompt directors into action.

#### *D Shareholder Resolutions*

A cheaper alternative to addressing such risk are shareholder resolutions. Under ss 120 - 121 of the Companies Act 1993, an annual meeting of shareholders or a special meeting of shareholders may be called. Before such a meeting, a shareholder “may give written notice to the board of a matter the shareholder proposes to raise for discussion or resolution at the next meeting of shareholders.”<sup>137</sup> These provisions, in addition to s 122 which allows for resolutions in lieu of meetings, allow shareholders to alert directors to the need to address climate risk.<sup>138</sup> A related mechanism is a management review by shareholders under s 109.<sup>139</sup> In 2011, non-governmental organisation CERES reported the filing of 111 shareholder resolutions with 81 North American companies on climate change and other sustainability concerns.<sup>140</sup> For example, shareholders of both Avon Products and the Hershey Company sought to adopt and implement procurement policy for sourcing certified sustainable palm oil.<sup>141</sup> Palm oil can increase greenhouse gas emissions because it grows on peat soil.<sup>142</sup> Shareholders of Dr Pepper Snapple, likewise, sought to address climate risks in the supply chain.<sup>143</sup> It is to be noted, however, that such resolutions are rarely passed.<sup>144</sup> Many resolutions are withdrawn after companies meet shareholder demands to address regulatory, competitive and reputational pressures for mitigating greenhouse gas emissions.<sup>145</sup> A striking instance of shareholder dissatisfaction occurred when United States corporation TXU Energy decided to build eleven new coal-based power plants.<sup>146</sup> Investors revolted and the share price plummeted amid concerns over emissions costs.<sup>147</sup> A buyout by environmentally conscious equity groups was successful and eight of the eleven coal plants were abandoned.<sup>148</sup>

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<sup>135</sup> *Frykberg v Heaven* (2002) 9 NZCLC 262,966 (HC) at [52].

<sup>136</sup> *Peters v Birnie* [2010] NZAR 494 (HC) at [57].

<sup>137</sup> Companies Act 1993, sch 1, cl 9.

<sup>138</sup> Erin Reid and Michael Toffel “Responding to Public and Private Politics: Corporate Disclosure of Climate Change Strategies” (2009) 30 Strategic Management Journal 1157.

<sup>139</sup> Companies Act 1993, s 109.

<sup>140</sup> Investor Network on Climate Risk “Climate and Energy Resolutions 2011” (2012) <[www.ceres.org/incr/engagement/corporate-dialogues/shareholder-resolutions/resolutions-2011](http://www.ceres.org/incr/engagement/corporate-dialogues/shareholder-resolutions/resolutions-2011)>.

<sup>141</sup> Investor Network on Climate Risk “Climate, Energy, Water, & Sustainability Resolution Tracker - 2011 Proxy Season Final” (2012) <[www.ceres.org/incr/engagement/corporate-dialogues/shareholder-resolutions/2011-complete-resolutions-tracker](http://www.ceres.org/incr/engagement/corporate-dialogues/shareholder-resolutions/2011-complete-resolutions-tracker)>.

<sup>142</sup> Al Gore *Our Choice: A Plan to Solve the Climate Crisis* (Bloomsbury, London, 2009) at 175.

<sup>143</sup> Investor Network on Climate Risk “Resolution Tracker”, above n 141.

<sup>144</sup> Bielefeld, above n 99.

<sup>145</sup> Schatz, above n 36, at 364.

<sup>146</sup> At 377.

<sup>147</sup> At 377.

<sup>148</sup> At 377.

## *V Greenwash: Misleading and Deceptive Carbon Claims*

Measurement of greenhouse gas emissions for businesses is a complex exercise. Carbon offsetting and carbon neutrality are increasingly sold by businesses as a way by which individuals can reduce the effects of climate change.<sup>149</sup> However without advertising accuracy, customers will lose trust in environmentally beneficial products. Greenwashing, misleading consumers about the environmental attributes of a product or company, is on the rise.<sup>150</sup> In New Zealand, s 9 of the Fair Trading Act 1986 provides that no person shall, in trade, engage in conduct that is misleading or deceptive or is likely to mislead or deceive. Such conduct is judged by its effect on reasonable members of the class of people to whom the conduct is directed.<sup>151</sup> The conduct must be considered holistically and a failure to communicate certain facts or matters when required may be considered as part of that conduct by way of an omission to act.<sup>152</sup> The misleading or deceptive conduct test is objective having regard to all the circumstances and the persons who have been affected.<sup>153</sup> Hence, conduct which lacks culpability does not absolve such conduct.<sup>154</sup> Importantly, therefore, it is unnecessary to prove damage just likelihood thereof.<sup>155</sup> Sections 10 and 11 of the Fair Trading Act 1986 create a criminal offence<sup>156</sup> that “no person shall, in trade, engage in conduct that is *liable* to mislead the public as to the nature, manufacturing process, characteristics, suitability for a purpose or quantity of” goods or services.<sup>157</sup> These provisions of the Fair Trading Act 1986 work alongside misrepresentation in the law of contract, and negligent misrepresentation and deceit in the law of torts. Given the difficulties that arise with carbon claims, New Zealand,<sup>158</sup> Australia,<sup>159</sup> Canada,<sup>160</sup> United States,<sup>161</sup> and the United

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<sup>149</sup> Jessica Fliegelman “The Next Generation of Greenwash: Diminishing Consumer Confusion Through a National Eco-Labeling Program” (2010) 37 Fordham Urb L J 1001 at 1004; Sophie Chan “Eligible Carbon Claims in the Voluntary Carbon Market” (2011) 28 EPLJ 9 at 9.

<sup>150</sup> At 1003-1004.

<sup>151</sup> *Taco Company of Australia Inc v Taco Bell Pty Ltd* (1982) 42 ALR 177 (FCA) at 202-203; Lindsay Trotman and Debra Wilson *Fair Trading: Misleading and Deceptive Conduct* (LexisNexis NZ, Wellington, 2006) at 74

<sup>152</sup> *Smythe v Bayleys Real Estate Ltd* (1993) 5 TCLR 454 (HC) at 464.

<sup>153</sup> *Savill v NZI Finance Ltd* [1990] 3 NZLR 135 (CA) at 146.

<sup>154</sup> *Wineworths Group Ltd v Comite Interprofessionel du Vin de Champagne* [1992] 2 NZLR 327 (CA) at 344.

<sup>155</sup> *Taylor Bros Ltd v Taylors Group Ltd* [1988] 2 NZLR 1 (CA) at 39.

<sup>156</sup> Fair Trading Act 1986, s 40.

<sup>157</sup> Fair Trading Act 1986, ss 10 – 11.

<sup>158</sup> New Zealand Commerce Commission “Fair Trading Act 1986: Guidelines for Carbon Claims” (July 2009) <[www.comcom.govt.nz/fair-trading-downloads/](http://www.comcom.govt.nz/fair-trading-downloads/)>; New Zealand Commerce Commission “Fair Trading Act 1986: Guidelines for Green Marketing” (December 2008) <[www.comcom.govt.nz/fair-trading-downloads/](http://www.comcom.govt.nz/fair-trading-downloads/)>; Raewyn Clark “Green Marketing” [2008] NZLJ 439; *Commerce Commission v Ecoworld NZ Ltd* DC Hamilton CRI-2003-019-21957, 31 May 2005.

<sup>159</sup> Australian Competition and Consumer Commission “Green Marketing and Australian Consumer Law” (11 March 2011) <[www.accc.gov.au](http://www.accc.gov.au)>.

<sup>160</sup> Canadian Standards Association “Environmental Claims: A Guide for Industry and Advertisers” (June 2008) Canadian Competition Bureau <[www.competitionbureau.gc.ca](http://www.competitionbureau.gc.ca)>.

<sup>161</sup> Federal Trade Commission “Part 260: Guides for the Use of Environmental Marketing Claims” (1992) <[www.ftc.gov/bcp/gnrule/guides980427.htm](http://www.ftc.gov/bcp/gnrule/guides980427.htm)>.

Kingdom<sup>162</sup> all have green guides issued by the relevant government department explaining what is acceptable advertising.

For greenhouse gases, the Greenhouse Gas Protocol developed by the World Business Council for Sustainable Development and the World Resources Institute is an international accounting tool for quantifying and reporting. This was adopted by the International Standards Organisation in ISO 14064-1, ISO 14064-2, and ISO 14064-3. These include requirements for the design, development, management, reporting and verification of an organisation's greenhouse gas inventory. These work in parallel to the Climate Registry, PAS 2050, and the Voluntary Carbon Standard which aim to have consistent methods to calculate, verify and publicly report greenhouse gas emissions. The Greenhouse Gas Protocol covers the six gases regulated by the Kyoto Protocol although other greenhouse gases can be reported.<sup>163</sup> Emission sources are categorised into three scopes.<sup>164</sup> Scope 1 is direct greenhouse gas emissions which is emissions that occur from sources owned or controlled by the company. Scope 2 emissions are indirect emissions from electricity purchased by the company. Scope 3 emissions are other indirect greenhouse gas emissions such as transportation of fuels, waste disposal and the use of sold products and services. Carbon neutrality of one of these scopes without explaining that there is not carbon neutrality of another could amount to a misrepresentation. For instance, claims of carbon neutral air travel will usually just take into account the emissions to carry one passenger from one destination to another. It may not consider the electricity used in running offices and maintenance of the air fleet. Nor would it usually count employee travel to and from work or work related air trips required for the company's operation.

In *Australian Competition and Consumer Commission v GM Holden*, GM Holden advertised that its Saab cars had "carbon emissions neutral across the entire Saab range."<sup>165</sup> The advertisements explained that Holden would plant 17 native trees in the first year as a carbon offset for each vehicle sold. The Australian Competition and Consumer Commission (ACCC) issued proceedings over the misleading advertisements as the greenhouse gas emissions from any Saab vehicle would not be neutral over the life of that motor vehicle as the tree planting referred to would not provide a carbon offset for more than a single year's operation of any Saab vehicle. The Commission sought an injunction restraining further advertising on the previous terms, corrective advertising, and an order requiring the company to have an independent assessor make improvements to compliance.<sup>166</sup> GM Holden on its own accord agreed to plant 12,500 native trees to offset the carbon emissions for Saabs sold

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<sup>162</sup> Department for Environment, Food and Rural Affairs "Green Claims Guidance" (February 2011) <[www.defra.gov.uk/publications/files/pb13453-green-claims-guidance.pdf](http://www.defra.gov.uk/publications/files/pb13453-green-claims-guidance.pdf)>.

<sup>163</sup> The Greenhouse Gas Protocol "A Corporate Accounting and Reporting Standard: Revised Edition" (2004) <[www.ghgprotocol.org/files/ghgp/public/ghg-protocol-revised.pdf](http://www.ghgprotocol.org/files/ghgp/public/ghg-protocol-revised.pdf)> at 3 and 25.

<sup>164</sup> At 25.

<sup>165</sup> *Australian Competition and Consumer Commission v GM Holden Ltd* [2008] FCA 1428 at [1].

<sup>166</sup> At [7].

over the period of advertising based on a 10 year vehicle life.<sup>167</sup> This was because GM Holden accepted that the advertisement could be interpreted in the manner contended.<sup>168</sup>

Greenwash has been found in a number of other cases. In *Australian Competition and Consumer Commission v Global Green Plan* there was misleading and deceptive conduct where customers paid for renewable energy certificates but Global Green Plan did not use all the money obtained to purchase certificates.<sup>169</sup> Similarly, the ACCC and Sanyo settled after Sanyo claimed its Eco Multi Series air conditioners were environmentally friendly for a new ozone era. Unfortunately, the substance used was a potent greenhouse gas.<sup>170</sup> Related settlements were reached with air conditioning competitors Daikin, Dimplex and De Longhi.<sup>171</sup> The ACCC also investigated Goodyear about its Eagle LS 2000 tyres which it claimed were environmentally friendly, had minimal environmental impact and production resulted in less carbon dioxide emissions but such representations could not be substantiated.<sup>172</sup> In addition, Energy Australia claimed that electricity generated would be totally from accredited renewable resources but some of Energy Australia's electricity came from non-accredited sources.<sup>173</sup> Likewise, Prime Carbon was investigated about the supply of carbon credits which claimed affiliation with the National Stock Exchange which it did not have and representations about the status of National Energy Registry which were not correct.<sup>174</sup> There was a strong inference that Prime Carbon had received government sanction which was untrue.<sup>175</sup> Orders were made restraining the company and its director from engaging in such conduct, requiring compliance training, and for publication to the company's customers by letter of the misrepresentations.<sup>176</sup>

Green advertising can be confusing to consumers. For instance, some surveys record that almost a majority of consumers think that carbon dioxide depletes the ozone layer which as a matter of science is impossible.<sup>177</sup> Other surveys reveal that a sizable minority of consumers think that "made with renewable energy" claims means that a product is made

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<sup>167</sup> At [10].

<sup>168</sup> At [10].

<sup>169</sup> *Australian Competition and Consumer Commission v Global Green Plan Ltd* [2010] FCA 1057 at [3].

<sup>170</sup> Australian Competition and Consumer Commission "ACCC institutes Court Action against Sanyo Airconditioners manufacturing Sinapore Pty Ltd" (15 September 2003) <www.accc.gov.au>.

<sup>171</sup> Australian Competition and Consumer Commission "Warning to Air Conditioning Industry after Daikin 'Green' Claims Challenged by ACCC" (19 October 2004) <www.accc.gov.au>; Australian Competition and Consumer Commission "Dimplex Chills Out on "Environmentally Friendly" Claims" (14 November 2006) <www.accc.gov.au>; Australian Competition and Consumer Commission "De Longhi alters "Environmentally Friendly" Claims" (30 April 2008) <www.accc.gov.au>.

<sup>172</sup> Brian Preston "Climate Change Litigation" in Rosemary Lyster (ed) *In the Wilds of Climate Law* (Australian Academic Press, Bowen Hills, 2010) 208 at 216.

<sup>173</sup> Australian Competition and Consumer Commission "EnergyAustralia Clears Air about Green Electricity Claims" (21 December 2007) <www.accc.gov.au>.

<sup>174</sup> Glen Wright "Carbon Offsets and Consumer Protection" (2010) 90 *Impact!: A National Journal of Environmental Law* 15 at 17.

<sup>175</sup> At 17.

<sup>176</sup> At 17.

<sup>177</sup> Fliegelman, above 149, at 1032.

from renewable materials, recycled materials, or that the product itself is recyclable.<sup>178</sup> Even so, a degree of consumer knowledge must be presumed and the objective of the environmental claim is what is actually important. ACCC, therefore seemed to be pushing the boundaries in finding a misleading claim in the V8 Championship Series.<sup>179</sup> The V8 Supercars claimed that the planting of 10,000 native trees would offset the carbon emissions from the V8 Championship Series.<sup>180</sup> The Commission was concerned that customers would think that the 10,000 trees would absorb the carbon emissions over a short period of time when in fact the emissions would be absorbed over the life of the tree.<sup>181</sup> It is arguable that most reasonable green consumers would know that a tree must be planted and must grow to sequester carbon over time and if sequestration was to take place immediately, then the alternative of purchasing emissions units as an offset would be used. Such heavy handed regulation may deter companies from attempting carbon neutral projects at all.

## *VI Conclusion*

Traditionally, reducing greenhouse gases through an emissions trading scheme has been presented as the ruin of modern businesses. This is because private enterprises tend to shun governmental control. This chapter has seen that shareholders, creditors, insurance agents, and employees informed of climate change risks have seen business opportunities and are being rewarded by the market. Investors have been particularly active in shying away from high carbon portfolios with high climate change risk. Instead, investors have moved to invest in businesses which reduce greenhouse gases because such businesses avoid strict regulation, strengthen customer loyalty, access talented employees, create competitive advantages and enhance business relationships. Disclosure of greenhouse gas emissions and the financial reporting of climate change risks are prompting the market to reduce greenhouse gas emissions. Modern directors have to be aware of such risks through their duty of care, skill and diligence or even in extreme circumstances the duty to act in the best interests of the company. Shareholder resolutions have reminded directors of their duties. Of course, to be effective at reducing greenhouse gases, corporate claims cannot be misrepresented. The next generation of greenwash of unsubstantiated carbon claims is upon consumers. With a well informed market the market has rewarded businesses which have created opportunities by reducing greenhouse gas emissions.

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<sup>178</sup> Federal Trade Commission “Proposed Revisions to the Green Guides” (2010) <[www.ftc.gov/opa/2010/10/greenguide.shtm](http://www.ftc.gov/opa/2010/10/greenguide.shtm)> at 158.

<sup>179</sup> Preston, above n 172, at 217.

<sup>180</sup> At 217.

<sup>181</sup> At 217.



## Chapter Six

### Renewable Energy Law in New Zealand

New Zealand's energy demand has been growing steadily and is forecast to continue to grow. New Zealand must confront two major energy challenges as it meets growing energy demand. The first is to respond to the risks of climate change by reducing greenhouse gas emissions caused by the production and use of energy. The second is to deliver clean, secure, affordable energy while treating the environment responsibly.

National Policy Statement for Renewable Electricity Generation<sup>1</sup>

#### *I Introduction*

Electricity as a source of energy derived from renewable resources seeks to displace greenhouse gases emitted from fossil fuels. To this end, the New Zealand Government has stated that it will adhere to a target of 90 percent of electricity generation to be from renewable resources (which currently sits at around 74 percent)<sup>2</sup> by 2025 (in an average hydrological year) providing this does not affect security of supply. Historically, New Zealand has benefited from the use of renewable resources. Today, renewable resources are being encouraged because they will reduce greenhouse gas emissions, allow diversification, enable security of supply, and reduce transmission losses. Nonetheless, legal impediments exist to the development of such resources. The most important is the “first-in-first-served” system of resource allocation which traverses ownership and usufruct rights (the right to use). Of course although there is a “demonstrable public need for power”, “not all development of such renewable energy is appropriate.”<sup>3</sup> It is conceded that the development of renewable resources for electricity all have adverse environmental effects of some kind.<sup>4</sup> The legal analysis that follows shows that the competition over the use of resources in New Zealand has to negotiate sustainability over the appearance of an untapped resource with its limits.

This chapter only evaluates the legal impediments to New Zealand's development of hydro, geothermal, wind, and marine energy. This is despite the definition of renewable energy in the RMA 1991 as “energy produced from solar, wind, hydro, geothermal, biomass, tidal, wave, and ocean current sources.”<sup>5</sup> For convenience, solar energy is analysed in the upcoming chapter on energy efficiency and biomass energy is analysed in the last chapter.

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<sup>1</sup> New Zealand Government “National Policy Statement for Renewable Electricity Generation 2011” (14 April 2011) Ministry for the Environment <<http://www.mfe.govt.nz>> [NPSREG 2011], preamble.

<sup>2</sup> Energy Efficiency and Conservation Authority “Developing Our Energy Potential: The New Zealand Energy Strategy 2011-2021 and the New Zealand Energy Efficiency and Conservation Strategy 2011-2016” (August 2011) Ministry of Economic Development <[www.med.govt.nz](http://www.med.govt.nz)> at 6.

<sup>3</sup> *Upland Landscape Protection Society Incorporated v Clutha District Council* EnvC Christchurch C 85/2008, 25 July 2008 at [239]-[240].

<sup>4</sup> Debroah Lynne Johnson “Electricity and the Environment – Current Trends and Future Directions” (2008) 12 NZJEL 195 at 213-214.

<sup>5</sup> RMA 1991, s 2, definition of “renewable energy”.

Each part of this chapter follows a general pattern of exploring historical legal developments, ownership disputes, and then the adverse environmental effects of hydro, geothermal, wind and marine respectively. The final paragraph in each part is devoted to Maori concerns. This chapter has been confined entirely to New Zealand law owing to the already voluminous judgments and commentary. Before examining the legal impediments to hydro, geothermal, wind and marine energy, a short foreword describes the benefits of renewable energy.

## *II The Benefits of Renewable Energy*

The bundle of resource consents necessary for almost all renewable energy projects requires an assessment of environmental effects.<sup>6</sup> Not all environmental effects are adverse. Benefits are summarised in the National Policy Statement for Renewable Electricity Generation 2011 (NPSREG 2011), which aims to promote the efficient use of renewable energy in New Zealand. This recognises as a matter of national significance “the need to develop, operate, maintain and upgrade renewable electricity generation activities” and “the benefits of renewable electricity generation.”<sup>7</sup> This includes avoiding, reducing or displacing greenhouse gas emissions. In addition, maintaining or increasing electricity generation capacity as well as security of supply through diversification is advantageous. It emphasises the benefits of using renewable national resources rather than finite resources; the reversibility of some renewable electricity generation technologies; and avoiding reliance on imported fuels. Decision makers are required to consider the maintenance of existing renewable electricity generation output; minor reductions in existing renewable electricity generation can have cumulative effects; and meeting the New Zealand Government’s national target for renewable electricity. The NPSREG 2011 elucidates that renewable electricity generation needs to be sited where the renewable resources are available; technical difficulties may arise; and associated infrastructure will usually be required. Decision makers should also design measures to allow for environmental mitigation (including offsetting measures or compensation) and encourage adaptive management. Regional and district plans are required to identify and accommodate potential sites.

As seen, s 7(j) of the RMA 1991 explicitly requires decision makers to have particular regard to “the benefits to be derived from the use and development of renewable energy.”<sup>8</sup> This is complemented with s 104E.<sup>9</sup> In this way, greenhouse gas “emissions targets and renewable energy uptake are closely interlinked.”<sup>10</sup> Clearly, s 7 (j) prefers renewable energy.

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<sup>6</sup> RMA 1991, ss 88(2)(b), 104(1)(a) and sch 4.

<sup>7</sup> NPSREG 2011, above n 1, at 4.

<sup>8</sup> Resource Management Act 1991, s 7(j); See generally: Barry Barton “Renewable Energy in New Zealand” (2005) 23 J Energy and Nat Res L 141; Richard Hawke “Support for Renewable Energy: The Government’s Response” (2008) 7 BRMB 159; Johnson, above n 4; Jagdeep Singh-Ladhar “Support for Renewable Energy: Analysing Legal Issues for Wind Power Generators in New Zealand Law” (2008) 7 BRMB 142.

<sup>9</sup> RMA 1991, s104E.

<sup>10</sup> David Grinlinton “Achieving Emissions Reduction and Renewable Energy Targets: The Case for “Feed-In-Tariffs”” (2009) 8 BRMB 68 at 72.

New Zealand has not chosen to achieve such a goal with renewable portfolio standards, tax incentives, or feed-in tariffs.<sup>11</sup> Rather, New Zealand has focused on energy strategies, resource management planning, building codes, government procurement, various grants and the NZETS.<sup>12</sup> The New Zealand Energy Strategy 2011 provides the supporting framework through which such objectives are to be achieved. This states “developers of these resources face challenges from immature markets, low consumer awareness, emergent technologies, uncertain environmental effects or lack of supporting infrastructure.”<sup>13</sup> These initiatives have been supplemented with other National Policy Statements.<sup>14</sup>

Lastly, the nature of electricity in New Zealand needs explaining. Renewable generating capacity in order of capacity is hydro, geothermal, wind with marine, solar and biomass having an indistinguishably small contribution to the electricity grid.<sup>15</sup> Residential electricity consumption only accounts for 35 per cent of that consumed.<sup>16</sup> 14 per cent of New Zealand’s electricity goes to Rio Tinto’s smelter at Bluff.<sup>17</sup> The rest is consumed by commercial and industrial sectors. According to the Electricity Authority for the residential sector in 2009, only 36 per cent of the cost of electricity is actually derived from generation.<sup>18</sup> Transmission accounts for 8 per cent, distribution accounts for 29 per cent, metering costs are 2 per cent, the retail margin is 14 per cent and GST is 11 per cent (which has since increased to 15 per cent).<sup>19</sup> New Zealand has five principal retailers which in the order of market share are: Genesis Energy, Contact Energy, Mercury Energy (Mighty River Power), Meridian Energy and Trust Power.<sup>20</sup> All of these companies are collectively regulated by the Electricity Authority.<sup>21</sup> Electricity prices are determined by large generators competing in the electricity spot market for the right to generate electricity.<sup>22</sup> Offers are submitted in the whole-sale information and trading system for each future half-hour period.<sup>23</sup>

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<sup>11</sup> At 72.

<sup>12</sup> At 72.

<sup>13</sup> NPSREG 2011, above n 1, at 6.

<sup>14</sup> Department of Conservation “New Zealand Coastal Policy Statement 2010” (3 December 2010) <[www.doc.org.nz](http://www.doc.org.nz)>; New Zealand Government “National Policy Statement on Electricity Transmission 2008” (13 April 2008) Ministry for the Environment <<http://www.mfe.govt.nz>>; New Zealand Government “National Policy Statement for Freshwater Management 2011” (1 July 2011) Ministry for the Environment <<http://www.mfe.govt.nz>>.

<sup>15</sup> Electricity Authority “Electricity in New Zealand 2011” (2011) <[www.ea.govt.nz](http://www.ea.govt.nz)> at 18.

<sup>16</sup> At 4.

<sup>17</sup> At 2.

<sup>18</sup> At 25.

<sup>19</sup> At 25; GST Act 1985, s 8.

<sup>20</sup> At 9.

<sup>21</sup> Electricity Industry Act 2010, s 12.

<sup>22</sup> Electricity Authority, above n 15, at 11.

<sup>23</sup> At 11.

### *III Hydroelectricity*

New Zealand has an existing wealth of hydroelectric facilities for renewable energy generation to reduce greenhouse gas emissions. The development of such facilities has not been without controversy. Conflicts for other uses of water such as irrigation have developed testing the RMA 1991's sustainability framework. In addition, Maori have asserted ownership of water through aboriginal title even though at common law water cannot be owned until captured. Over and above incompatible water uses, hydroelectric projects can have extensive environmental effects. It can reduce catchment water quality as well as groundwater quality, enable the growth of flora, generate predatory risks for birds, decrease the habitat of fish if not creating a barrier altogether, induce sediment build up, produce erosion and dust, change landscape, impede recreational activities, and infringe Maori values with water. Although these obstacles can be overcome, there are real challenges to the expansion of hydroelectricity in New Zealand to reduce greenhouse gas emissions.

#### *A History of Hydroelectric Development in New Zealand*

New Zealand has a rich history of hydroelectric development. With water rights associated with gold fields,<sup>24</sup> the first hydroelectric power station was built in 1886.<sup>25</sup> Since then New Zealand has sought out water for electricity generation in line with Peter Hay's comprehensive 1904 report on New Zealand's hydroelectric potential.<sup>26</sup> New Zealand's venture into hydroelectricity has not been flawless and on 7 June 1930 a 2,000 feet long crack parallel to the Waikato River appeared owing to the Arapuni hydroelectric power station. Gaps appeared in the concrete where the spillway joined the intake and "the penstocks broke away from the concrete encasing their tops."<sup>27</sup> Undeterred, central government continued to seek hydroelectricity opportunities on the Waikato and Upper Waitaki Rivers as electricity consumption soared. The Tongariro development followed with its "complex system of river and stream diversions, tunnels and canals, lakes and power stations."<sup>28</sup> With the advent of the Cook Strait cable in 1965, electricity was able to flow freely between the North and South Islands.<sup>29</sup> By 1970, New Zealand was able to boast having an 89 per cent renewable electricity portfolio.<sup>30</sup>

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<sup>24</sup> Nicola Wheen "A Natural Flow – A History of Water Law in New Zealand" (1997) 9 (1) Otago L Rev 71 at 94.

<sup>25</sup> John Martin *People, Politics and Power Stations: Electric Power Generation in New Zealand 1880-1998* (2<sup>nd</sup> ed, Bridget Williams Books Limited, Wellington, 1998) at 19.

<sup>26</sup> At 41; Peter Hay "New Zealand Water-Powers Etc" [1904] II AJHR D-1A

<sup>27</sup> At 94.

<sup>28</sup> At 220.

<sup>29</sup> At 181.

<sup>30</sup> Geoffrey Bertram and Doug Clover "Kicking the Fossil Fuel Habit: New Zealand's Ninety Percent Renewable Energy Target for Electricity" in Fereidoon Sioshansi (ed) *Generating Electricity in a Carbon-Constrained World* (Burlington, Elsevier, 2010) 369 at 385.

The most well-known controversies, of course, are the subsequent Manapouri and Clyde hydroelectric projects. For Manapouri, it was mooted the lake should be raised 30 metres to the same level as Lake Te Anau.<sup>31</sup> This would “inundate 160 km of lake shoreline and drown 800 hectares of shoreline forest” not to mention the submergence of 26 of Lake Manapouri’s 35 islands.<sup>32</sup> With the establishment of 19 “Save Manapouri” committees all over the country<sup>33</sup> and a 265,000 signature petition,<sup>34</sup> the lake level was not raised.<sup>35</sup> In comparison, the Clutha River became another focus and Roxburgh was commissioned in 1956.<sup>36</sup> Upstream the formation of a Clyde dam had a series of proposals but a high 102 metre gravity fed concrete dam began construction in 1979 with the creation of Lake Dunstan flooding the former town of Cromwell.<sup>37</sup> This was achieved via legislation<sup>38</sup> overruling a High Court judgment that held the Planning Tribunal was able to take into account the end use of power in determining a water right grant.<sup>39</sup>

In 2001, Meridian Energy announced a hydroelectric project for the Lower Waitaki River.<sup>40</sup> Known as Project Aqua, it involved building a 62 kilometre canal and taking 73 per cent of the river flow through six power stations.<sup>41</sup> In 2002, Meridian Energy obtained “network utility operator” status requiring Councils to designate in their plans development potential and giving Meridian the power to compulsorily acquire land.<sup>42</sup> In 2003, Meridian Energy filed 261 resource consents which included 60 environmental effects reports on the project.<sup>43</sup> Over 6000 public submissions were received with over 96 per cent of those opposed to the project.<sup>44</sup> Meridian urged central government to intervene which the government did through the formation of a Waitaki Catchment Regional Plan for allocation of water.<sup>45</sup> However, Meridian wanted an affirmation of its pre-existing water rights. Simultaneously, irrigation interests who wished to use water applied for resource consents to take up to nine million cubic metres per week.<sup>46</sup> In the High Court, Fogarty J in *Star Holdings Limited v Meridian Energy* refused to strike out a declaration as to the subsequent

<sup>31</sup> Philippa Mein Smith *A Concise History of New Zealand* (Cambridge University Press, New York, 2005) at 195.

<sup>32</sup> Michael King *The Penguin History of New Zealand* (Auckland, Penguin Books, 2003) at 441.

<sup>33</sup> At 442.

<sup>34</sup> Mein Smith, above n 31, at 195.

<sup>35</sup> Manapouri–Te Anau Development Amendment Act 1981.

<sup>36</sup> Martin, above n 25, at 269.

<sup>37</sup> At 276.

<sup>38</sup> Clutha Development (Clyde Dam Empowering) Act 1982.

<sup>39</sup> *Gilmore v National Water and Soil Conservation Authority* (1982) 8 NZTPA 298 (HC); Nicola Wheen “A History of New Zealand Environmental Law” in Eric Pawson and Tom Brooking (ed) *Environmental Histories of New Zealand* (Melbourne, Oxford University Press, 2002) 261 at 268.

<sup>40</sup> Claire Kilner “Project Aqua: Lessons for the Resource Management Act ?” (MA Thesis, University of Otago, 2005) at 1.

<sup>41</sup> At 1.

<sup>42</sup> RMA 1991, ss 166-167.

<sup>43</sup> Kilner, above n 40, at 11.

<sup>44</sup> At 80.

<sup>45</sup> Resource Management (Waitaki Catchment) Amendment Act 2004, part 3.

<sup>46</sup> *Star Holdings Limited v Meridian Energy Limited* HC Timaru CIV 2003-476-000732, 23 March 2004 at [4].

rights to water.<sup>47</sup> Burdened with delays, challenges to its water rights, growing costs, unhelpful governmental intervention and geotechnical problems, Meridian abandoned the project in early 2004 despite spending nearly \$95 million.<sup>48</sup>

## *B Ownership of Water*

At common law, water is incapable of ownership in its natural state as a fugacious resource until captured (*res communes*) which enables use (*usufruct*) rights.<sup>49</sup> Water is not owned because it is difficult to possess. For instance, the water in a free flowing river moves downstream from its origins to a lake and generally to the sea. The metamorphosis from property that is not owned to property that is owned takes place when the property is captured. This is known as the rule of capture like water in a bucket. The common law also remedied the harshness of the no ownership principle with riparian rights.<sup>50</sup> Riparian rights were rights of those adjoining a water body who traditionally owned the bed of the water body to its middle.<sup>51</sup> The rights included access rights;<sup>52</sup> to have the water flow in its natural state in both quality and quantity;<sup>53</sup> to take water for domestic purposes;<sup>54</sup> and to take water for extraordinary purposes where the rights of other riparian owners were protected if such use was reasonable, connected with the riparian land, and water was returned in its natural state.<sup>55</sup> Extraordinary purposes included damming a stream for a mill.<sup>56</sup> Different rules applied to tidal and navigable water bodies following an analogy with a highway.<sup>57</sup> Fisher clarifies that at common law “there is no private property regime in water until the water has been [abstracted] which is inextricably linked to the ownership and occupation of land.”<sup>58</sup>

In terms of ownership, Maori have a strong affinity with water as “the wellbeing of Maori depends upon the wellbeing of water.”<sup>59</sup> For Maori, “life of the river [is] inseparable

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<sup>47</sup> At [44].

<sup>48</sup> Kilner, above n 40, at 1.

<sup>49</sup> For water: *Williams v Morland* (1824) 107 ER 620 (KB) at 621; *Liggins v Inge* (1831) 131 ER 263 (Comm Pleas) at 268; *Mason v Hill* (1833) 110 ER 692 (KB) at 701; *Wood v Waud* (1849) 154 ER 1047 (Exch) at 1058; *Embrey v Owen* (1851) 155 ER 579 (Exch) at 583; *Race v Ward* (1855) 119 ER 259 (KB) at 261; *Glenmark Homestead Limited v North Canterbury Catchment Board* [1975] 2 NZLR 71 (SC) at 81; *Attorney-General v Holland* (2007) 8 NZCPR 282 (HC) at [33]; See generally Wayne Morrison (ed) *Blackstone's Commentaries on the Law of England: Book II* (Oxford, Cavendish, 2001) at [14]; Derek Nolan (ed) *Environmental and Resource Management Law* (4<sup>th</sup> ed, Lexis Nexis NZ, Wellington, 2011) at 523; Anthony Scott *The Evolution of Resource Property Rights* (Oxford University Press, Oxford, 2008) at 63- 126.

<sup>50</sup> Scott, above n 49, at 63

<sup>51</sup> *Laws of New Zealand Water* (online ed) at [57].

<sup>52</sup> At [46].

<sup>53</sup> At [46].

<sup>54</sup> At [53].

<sup>55</sup> At [54].

<sup>56</sup> At [54].

<sup>57</sup> At [256].

<sup>58</sup> Douglas Fisher “Rights of Property in Water: Confusion or Clarity” (2004) 21 EPLJ 200 at 215.

<sup>59</sup> Jacinta Ruru “The Right to Water as the Right to Identity: Legal Struggles of Indigenous Peoples of Aotearoa New Zealand” in Farhana Sultana and Alex Loftus (ed) *The Right to Water: Politics, Governance and Social Struggles* (Earthscan, New York, 2012) 110 at 120.

from the life of the people.”<sup>60</sup> *Wai* in Maori means water, memory and who.<sup>61</sup> The Waitangi Tribunal report on the Whanganui River states that Maori see the water resource as a “whole and indivisible entity, not separated into beds, banks, and waters, nor into tidal, navigable and non-tidal navigable parts.”<sup>62</sup> The “conceptual understanding of the river as a tupuna or ancestor emphasises [that rendering] native title on its own terms... what Atihaunui owned was a river [un]dissected in parts.”<sup>63</sup> The Whanganui River had its own “mauri [life force], mana [prestige], and tapu [sacred restrictions].”<sup>64</sup> The Tribunal found that “the river system was possessed as a taonga of central significance to Atihaunui”<sup>65</sup> as “a manifestation of the Maori physical and spiritual conception of life and life’s forces.”<sup>66</sup> In this respect, the Waitangi Tribunal concluded that “what Atihaunui owned is equated with ownership for the purposes of English or New Zealand law.”<sup>67</sup> The assertion is that aboriginal title confers ownership of water.

Consistent with the common law, the Crown has always rejected Maori ownership to water under the doctrine of aboriginal title. The dissenting opinion of Kneebone in the Waitangi Tribunal’s inquiry into the Whanganui River is enlightening. He states lucidly:<sup>68</sup>

[W]ater has its own energy and will, and flows as part of nature’s cycle.... Humanity has never commanded authority over natural water as it evaporates, precipitates, freezes, melts and flows... [W]ater is borrowed from nature, made use of, then returned to be cleansed and refurbished.

Aboriginal title to rights, control, and management of water undoubtedly exists.<sup>69</sup> Aboriginal title covers “*rights* over land and water enjoyed by the indigenous or established

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<sup>60</sup> Michael King *Te Pūea: A Biography* (Hodder & Stoughton, Auckland, 1977) at 50 as cited by Linda Te Aho “Indigenous Challenges to Enhance Freshwater Governance and Management in Aotearoa New Zealand - The Waikato River Settlement” (2010) 20 *Journal of Water Law* 285 at 286.

<sup>61</sup> Ruru “The Right to Water”, above n 59, at 110.

<sup>62</sup> Waitangi Tribunal *The Whanganui River Report* (Wai 167, 1999) at 261.

<sup>63</sup> At 337.

<sup>64</sup> At 261; See generally: Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010, preamble.

<sup>65</sup> At 261.

<sup>66</sup> At 280.

<sup>67</sup> At 33.

<sup>68</sup> At 345-346.

<sup>69</sup> See generally: Tom Bennion “Water Issues: Part 1 of 2” (March 2007) *Maori L Rev* 1; Tom Bennion “Water Issues: Part 2 of 2” (April 2007) *Maori L Rev* 1; Meredith Gibbs and April Bennett “Maori Claims to Ownership of Freshwater” (August 2007) *RMJ* 13; Rachel Kennard “The Potential for Maori Customary Claims to Freshwater” (LLB(Hons) Dissertation, University of Otago, 2006); Jacinta Ruru “Maori Legal Rights to Water: Ownership, Management or Just Consultation?” (paper presented to the Annual Resource Management Law Association of New Zealand Conference, 1 October 2010); Jacinta Ruru *The Legal Voice of Māori in Freshwater Governance: A Literature Review* (Landcare Research, Lincoln, 2009); Jacinta Ruru “Undefined and Unresolved: Exploring Indigenous Rights in Aotearoa New Zealand’s Freshwater Legal Regime” (2010) 20 *Journal of Water Law* 236; Jacinta Ruru “Property Rights and Maori: A Right to Own a River?” in Klaus Bosselmann and Vernon Tava (ed) *Water Rights and Sustainability* (vol. 3, New Zealand Centre for Environmental Law Monograph Series, Auckland, 2011) 51; Mark Schroder “On the Crest of a Wave: Indigenous Title and Claims to the Water Resource” (2004) 8 *NZJEL* 1; Maia Wikaira “Maori Ownership of Freshwater: Legal Paradox or Potential?” (LLB(Hons) Dissertation, University of Otago, 2010).

inhabitants of a country up to the time of its colonisation.”<sup>70</sup> At common law, ownership of the land underneath water entitles the land owner to associated water rights. Nevertheless, seeing water as “molecules” passing one by one that are capable of ownership under the rule of capture without recognising the passing is difficult.<sup>71</sup> The opposing argument is that the common law should not be superimposed over aboriginal title.<sup>72</sup> Yet aboriginal title is a feature of the common law and such ownership would require a rewriting of the law. To confuse matters, the Waitangi Tribunal has stipulated “[t]he issue is not about ownership of water as such but about the right to access the water.”<sup>73</sup> Adding to the discourse, Cooke P has held that “however liberally Maori customary title [is] construed, [it] cannot [be thought that this] includ[es] the right to generate electricity by harnessing water power.”<sup>74</sup>

Crown settlements with Maori for Treaty of Waitangi breaches have reiterated this inability to own water in its natural state which has seen lands which are covered in water returned. Section 64 of the Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 acknowledges that the Crown and Waikato-Tainui “have different concepts and views regarding relationship with the Waikato River (which the Crown would seek to describe as including “ownership”).”<sup>75</sup> The Crown does vest “the fee simple estates in the sites of significance.... in the [Waikato Raupatu River] Trust” as detailed.<sup>76</sup> In a similar manner under the Ngai Tahu Claims Settlement Act 1998, there is statutory acknowledgement of the particular cultural, spiritual, historic, and cultural association of Ngai Tahu with various lakes and rivers.<sup>77</sup> Such statements provide for consent authorities and the Environment Court to have regard to the acknowledgement in decision making.<sup>78</sup> Such acknowledgements also are to be recorded on statutory plans.<sup>79</sup> At the centre of settlement remedies are the co-management and joint management of the water bodies in question.

The RMA 1991 regulates rather than confers ownership<sup>80</sup> over water “in all its physical forms whether flowing or not and whether over or under ground.”<sup>81</sup> This is augmented by s 354 of the RMA 1991 which preserves the existing rights of the Crown under s 21 of the Water and Soil Conservation Act 1967 to the sole right to control access to natural water but does not confer a right of ownership.<sup>82</sup> Under the RMA 1991, water includes

<sup>70</sup> *Te Runanganui O Te Ika Whenua Inc Society v Attorney-General* [1994] 2 NZLR 20 (CA) at 23.

<sup>71</sup> Waitangi Tribunal *Whanganui River*, above n 62, at 50.

<sup>72</sup> Ruru “Undefined and Unresolved”, above n 69, at 242.

<sup>73</sup> At 337.

<sup>74</sup> *Te Runanganui O Te Ika Whenua Inc Society v Attorney-General* [1994] 2 NZLR 20 (CA) at 24.

<sup>75</sup> Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010, s 64.

<sup>76</sup> Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010, s 66.

<sup>77</sup> Ngai Tahu Claims Settlement Act 1998, s 206.

<sup>78</sup> Ngai Tahu Claims Settlement Act 1998, ss 208-210.

<sup>79</sup> Ngai Tahu Claims Settlement Act 1998, s 220.

<sup>80</sup> RMA 1991, s 122.

<sup>81</sup> RMA 1991, s 2, definition of “water”.

<sup>82</sup> RMA 1991, s 354; Water and Soil Conservation Act 1967, s 21.



“freshwater, coastal water, and geothermal water.”<sup>83</sup> Consistent with the rule of capture, the definition of water does not include “water in any form while in any pipe, tank or cistern.”<sup>84</sup> Section 9 of the RMA 1991 prevents land use inconsistent with a district plan, proposed district plan, resource consent or existing use. Section 13 and 14 of the RMA 1991 are key operative water provisions. Nothing must be done which contravenes a regional plan, a proposed regional plan or resource consent in relation to uses of bed of lakes or rivers<sup>85</sup> nor can any person take, use, dam or divert any water unless otherwise authorised.<sup>86</sup> Like the common law, a person is not prohibited for using water for “reasonable domestic needs”.<sup>87</sup>

## 1 Conflicts over Resource

These debates over ownership are representative of broader sustainability debates over the use of water for other purposes such as irrigation. Thus, *Aoraki Water Trust v Meridian Energy* followed the *Star Holdings Limited v Meridian Energy* strike out application<sup>88</sup> and involved an application for declarations that pre-existing resource consents to Meridian for hydroelectricity on the Waitaki Catchment did not operate as a legal constraint on the statutory discretion to grant further resource consents for irrigation.<sup>89</sup> Meridian’s resource consent already was “entitled to use more water than currently flows naturally into and out of [Lake Tekapo].”<sup>90</sup> Chisholm and Harrison JJ held that the principle of non-derogation from grant applied so that there could not be a diminishment or derogation from another’s entitlement. Although the reasoning has been thoroughly criticised due to references to the property nature of resource consents despite statutory language to the contrary,<sup>91</sup> the outcome that subsequent consents could thwart pre-existing consents “would seriously undermine public confidence in the integrity of water [resource consents]”<sup>92</sup> is consistent with *Fleetwing Farms Ltd v Marlborough District Council* that resource consents are to be determined on a “first-in first-served” basis and that “the grant of one [resource consent] necessarily excludes [another].”<sup>93</sup> However, this adherence to first-in first-served resource allocation “leads to concern with the implementation of the sustainable principles of the RMA [1991 and t]here is a need to consider alternatives.”<sup>94</sup> Although here the water

<sup>83</sup> RMA 1991, s 2, definition of “water”.

<sup>84</sup> RMA 1991, s 2, definition of “water”.

<sup>85</sup> RMA 1991, s 13.

<sup>86</sup> RMA 1991, s 14.

<sup>87</sup> RMA 1991, s 14(3)(b).

<sup>88</sup> *Star Holdings Limited v Meridian Energy Limited* HC Timaru CIV 2003-476-000732, 23 March 2004.

<sup>89</sup> *Aoraki Water Trust v Meridian Energy Limited* [2005] 2 NZLR 268 (HC).

<sup>90</sup> At [15].

<sup>91</sup> Laura Fraser “Property Rights in Environmental Management: The Nature of Resource Consents in the Resource Management Act 1991” (2008) 12 NZJEL 145 at 169-175; RMA 1991, s 122.

<sup>92</sup> *Aoraki Water Trust v Meridian Energy Limited* [2005] 2 NZLR 268 (HC) at [41]; See also: *Re MacKenzie Irrigation Company Ltd* HC Wellington CIV-2005-485-2192, 27 June 2006 at [9].

<sup>93</sup> *Fleetwing Farms Ltd v Marlborough District Council* [1997] 3 NZLR 257 (CA) at 261.

<sup>94</sup> Barry Brunette “Freshwater Management and Allocation under the Resource Management Act 1991: Does First-In First-Served Achieve Sustainable Management Principles?” (2006) 10 NZJEL 169 at 213; See also: Ian Williams “The Waitaki River” (2005) NZLJ 177 at 178.

allocation was favourable to renewable generation, as elaborated on later, adherence to the principle of sustainability such as in water markets<sup>95</sup> may point to a more refined outcome.<sup>96</sup>

## C *Assessment of Environmental Effects of Hydroelectric Development*

### 1 *Water Quality*

Turning to an assessment of environmental effects of hydroelectric development, a modern case is *Lower Waitaki River Management Society v Canterbury Regional Council (Lower Waitaki River)*.<sup>97</sup> Meridian Energy in a complete redesign of Project Aqua created the North Bank Tunnel Concept. This was to take on average 211 cumecs from the Waitaki Dam Reservoir and return it to the Waitaki River 30 kilometres downstream through a tunnel.<sup>98</sup> Logically as water is taken out of a river those pollutants that are discharged into the river increase in concentration which can affect existing resource consent holders.<sup>99</sup> Therefore, there will be a “deterioration in water quality [with the associated] risk of disease through recreational contact, drinking water and the consumption of mahinga kai [food]” from lower flows.<sup>100</sup> It was estimated, as a result, that water quality was to reduce from the high of being “very good” to the low of being “poor.”<sup>101</sup> The Environment Court deduced that “Meridian’s [proposal] does not increase the contaminant load to the river and [others] within the catchment... are contributing [to the] contaminants of concern.”<sup>102</sup> Hence, “good water quality is a catchment-wide management issue.”<sup>103</sup> Meridian is, nonetheless, to support best practice for managing waterways on farms and is to fence its own waterways and wetlands.<sup>104</sup>

### 2 *Groundwater*

An associated environmental effect is on groundwater. In *Lower Waitaki River*, reducing the flow of the water of the river was to affect “significant aquifers which support 104 active wells supplying water for irrigation, stock water, domestic supply and dairy sheds.”<sup>105</sup> At 300 to 600 metres from the river, groundwater levels “reflect 3 to 6 day moving averages of river levels.”<sup>106</sup> As a condition of the consent, Meridian Energy was required to

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<sup>95</sup> Andrew Hayward “Freshwater Management: Water Markets and Novel Pricing Regimes” (2006) 10 NZJEL 215; Olivia Nyce “Water Markets under the Resource Management Act 1991: Do They Hold Water?” (2008) 14 Cant LR 123.

<sup>96</sup> Brunette, above n 94, at 212

<sup>97</sup> *Lower Waitaki River Management Society Incorporated v Canterbury Regional Council* EnvC Christchurch C 80/2009, 21 September 2009.

<sup>98</sup> At [1].

<sup>99</sup> *Bay of Plenty Regional Council v Fonterra Co-Operative Group Limited* [2011] NZEnvC 73.

<sup>100</sup> *Lower Waitaki River Management Society Incorporated v Canterbury Regional Council* EnvC Christchurch C 80/2009, 21 September 2009 at [279].

<sup>101</sup> At [280].

<sup>102</sup> At [414].

<sup>103</sup> At [412].

<sup>104</sup> At [413] and [419].

<sup>105</sup> At [36].

<sup>106</sup> At [37].

complete an Individual Mitigation Plan where measures are to mitigate the effects on groundwater quality through provision for the supply of water.<sup>107</sup> Again it was reiterated that Meridian should not be solely responsible for “the current (deteriorating) quality of the groundwater.”<sup>108</sup> An associated environmental effect of groundwater is on wetlands abutting the river. Expert evidence split the wetlands into riparian wetlands and terrace wetlands. For riparian wetlands, expert evidence was led that 135 hectares would be lost.<sup>109</sup> The Environment Court held that at least 75 hectares of native terrace wetlands were to be provided. Replacement of riparian wetlands was seen as unnecessary because “ephemeral wetlands within the riverbed... could be altered or obliterated by floods at any time.”<sup>110</sup>

### 3 *Flora*

Lowering water levels also has the effect of increasing vegetation and flora. This includes periphyton (algae) and macrophytes (plants).<sup>111</sup> Periphyton will grow in high nutrient and stagnant conditions and some species “can produce natural toxins which are a threat to people and animals.”<sup>112</sup> Didymo is a particularly invasive periphyton species of concern. In *Lower Waitaki River*, vegetation was to be addressed in a Geomorphology and Riverbed Vegetation Management Plan which required fairway clearance so that “effectively all vegetation (including willow, gorse and broom)” was removed for the length of the diversion.<sup>113</sup> Didymo and other nuisance periphyton species are to be addressed through “[f]lushing flows and adaptive management” which is a method also essential for fauna.<sup>114</sup>

### 4 *Birds*

Importantly, hydroelectric development will have an effect on wildlife. For instance, the Waitaki River is nationally and internationally recognised for its bird life.<sup>115</sup> This includes “27 braided river bird species (species of shags, geese, ducks, oyster catchers, stilts, plovers, gulls and terns).”<sup>116</sup> Of special importance in *Lower Waitaki River* were the white-fronted tern, black-fronted tern and black-billed gull.<sup>117</sup> Decreases in flow allows for vegetation encroachment reducing “suitable sites for nesting, breeding, roosting and feeding.”<sup>118</sup> Moreover, there is an increased predation risk as reduced flow “facilitate[s] access to bird breeding sites by mammalian predators” because the birds usually nest on islands.<sup>119</sup> The

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<sup>107</sup> At [421].

<sup>108</sup> At [421].

<sup>109</sup> At [274].

<sup>110</sup> At [433].

<sup>111</sup> At [65].

<sup>112</sup> At [68].

<sup>113</sup> At [409].

<sup>114</sup> At [440].

<sup>115</sup> At [87].

<sup>116</sup> At [87].

<sup>117</sup> At [90].

<sup>118</sup> At [332].

<sup>119</sup> At [333].

Braided River Bird Management Plan attempts to remedy such problems by maintaining an area of suitable braided river bird habitat as large as the pre-existing area and by maintaining (and where practicable enhancing) the breeding success of the threatened species.<sup>120</sup> Trials had been successful for habitat creation but were ultimately “a sad disappointment because... almost all the young birds died before fledging” primarily due to predation.<sup>121</sup>

## 5 Fish

Obvious candidates for adverse effects from hydroelectric development are fish. The first priority with reduced flows is on invertebrates which bigger fish feed on such as insects. Increase the food for fish, and the fish will follow.<sup>122</sup> In *Groome v West Coast Regional Council*, there was an application for an extension of the Arnold hydroelectric scheme by increasing generation capacity from 3 MW to 46 MW.<sup>123</sup> The effect was to hamper the velocity of the river and create significant shallow areas.<sup>124</sup> However, the Arnold is highly ranked for its trout abundance.<sup>125</sup> Groome contended that a year-round flow of 16 cumecs would appropriately maintain trout habitat rather than the split cumec regime consented. Judge Borthwick found that the change in flow would mean “trout [would] alter their diet depending on the availability of [the changing] invertebrate taxa.”<sup>126</sup> What was required was “monitoring to demonstrate that there is a healthy invertebrate community.”<sup>127</sup> In terms of brown trout, the four life stages were important including fry, juvenile, adult and spawning with different specific habitats required for each.<sup>128</sup> Judge Borthwick concluded that “[t]he river will continue to support a sports fishery; but it will be different” due to the change in flows.<sup>129</sup> Although different, it was “likely [to be] enhanced for many fishers.”<sup>130</sup>

While reduced flows can be an impediment to fish, hydroelectric structures on the riverbed can form a barrier to fish passage. There are two methods to get fish past the physical barrier of a dam: trap and transfer (active transfer) and constructed fish passes (passive transfer).<sup>131</sup> In *Director-General of Conservation v Marlborough District Council*, the proposal was for Trustpower to develop “six new small hydro-stations within the Wariu Valley.”<sup>132</sup> This posed a problem for “edge dwellers (such as bullies, juvenile trout and eels

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<sup>120</sup> At [442].

<sup>121</sup> At [449].

<sup>122</sup> *Groome v West Coast Regional Council* [2010] NZEnvC 399 at [45].

<sup>123</sup> *Groome v West Coast Regional Council* [2010] NZEnvC 199 at [36].

<sup>124</sup> At [44].

<sup>125</sup> At [68].

<sup>126</sup> At [96].

<sup>127</sup> At [98].

<sup>128</sup> At [78].

<sup>129</sup> At [157].

<sup>130</sup> At [183].

<sup>131</sup> *Mokau Ki Runga Regional Management Committee v Waikato Regional Council* EnvC Hamilton A 046/2006, 10 April 2006 at [16].

<sup>132</sup> *Director-General of Conservation (Nelson-Marlborough Conservancy) v Marlborough District Council* [2010] NZEnvC 403 at [1].

and galaxiids)” which could be “attracted to the intake and drawn into the canal system and injured or killed by passage through the turbines.”<sup>133</sup> While some juvenile fish can have a high survival rate though turbines, Judge Whiting was sceptical of the survival rates quoted.<sup>134</sup> Thus, a fish screen and a fish bypass channel are to return fish to the Wairau River.<sup>135</sup> “Freshes” of water following long periods of low flow for fish passage upstream or downstream are also important.<sup>136</sup> Trap and transfer is theoretically possible but is a less favourable option due to its labour intensive nature.<sup>137</sup>

## 6 Sediment

Hydroelectric development which dams a river to form a lake rather than relying on diversion is prone to sediment build up and flooding. Due to the barrier of a dam, sediment is unable to travel downstream, building up causing a greater risk of flooding. This poses a problem on the Clutha River as examined in *Alexandra District Flood Action Society v Otago Regional Council (Alexandra District Flood)*.<sup>138</sup> In this case, Contact Energy sought renewal of its resource consents for its Clutha River hydroelectric facilities.<sup>139</sup> In simple terms, sediment build up at Lake Roxburgh creates a backwater effect ultimately causing “flood levels to rise at Alexandra to a point five metres higher (for the same flow) than before the dam was built.”<sup>140</sup> Hence during 1994, 1995 and 1999 businesses and properties were flooded in Alexandra with the result that a stopbank had to be built along the river at Alexandra.<sup>141</sup> Judge Jackson found that “a flood at Alexandra has increased by at least 250 [per cent] as a consequence of the construction of the Roxburgh dam.”<sup>142</sup> While raising stopbanks, drawing down Lake Roxburgh, and dredging were all possibilities, Judge Jackson held that the Contact Energy should “remedy any damage caused by more frequent floods by paying for replacement and other reasonable costs.”<sup>143</sup> Although distressing to residents, efficiency required “dealing with any problem when it arises.”<sup>144</sup> This was additional to any common law remedy that had not otherwise been excluded.<sup>145</sup>

<sup>133</sup> At [434].

<sup>134</sup> At [438].

<sup>135</sup> At App 2, Condition 20.

<sup>136</sup> At [539].

<sup>137</sup> *Mokau Ki Runga Regional Management Committee v Waikato Regional Council* EnvC Hamilton A 046/2006, 10 April 2006 at [23].

<sup>138</sup> *Alexandra District Flood Action Society Incorporated v Otago Regional Council* EnvC Christchurch C 102/2005, 20 July 2005.

<sup>139</sup> At [5].

<sup>140</sup> At [14].

<sup>141</sup> At [14].

<sup>142</sup> At [184].

<sup>143</sup> At [184].

<sup>144</sup> *Alexandra District Flood Action Society Incorporated v Otago Regional Council (No.2)* EnvC Christchurch C 34/2007, 29 March 2007 at [30].

<sup>145</sup> *Randle v Contact Energy Ltd* HC Dunedin CP 44/98, 25 September 2000; *Randle v Contact Energy Ltd* CA 258/00, 19 November 2001.

The frequent changing in lake levels will also accelerate the related erosion and dust nuisances. Drawing down a lake will cause dust. Flooding a lake will cause shoreline erosion and vegetation loss. These issues were analysed in *Alexandra District Flood* with reference to Lake Hawea which is upstream from Roxburgh and Clyde dams. Lake Hawea is on average kept at 15.3 metres above its natural level with an operating range of 6.5 metres compared to a natural fluctuation of around 1.5 metres.<sup>146</sup> Contact Energy had dealt with erosion by purchasing affected land “to ensure that it is Contact’s land which is being eroded.”<sup>147</sup> Nonetheless, in various plans, Contact Energy is now required to monitor erosion prone areas<sup>148</sup> on the foreshore and is to remove “remnant trees and scrub on the bed of Lake Hawea.”<sup>149</sup> Furthermore, there is to be a record of “concentrations of ambient dust in the air for five years” at specified locations.<sup>150</sup> Evidence relating to the dust of the fine alluvial silt of Lake Hawea was conflicting because lake levels tend to be highest over summer (when dust is more of a problem elsewhere) and lowest over winter due to electricity demand.<sup>151</sup>

## 8      *The Existing Environment*

Where there is existing hydroelectric power station, this will be part of the existing environment so any proposal for removal will be an adverse environmental effect.<sup>152</sup> In *Alexandra District Flood*, the hydroelectric facilities “are operating now.”<sup>153</sup> This is different from the environment for a new activity which is usually “the application site as it is at the date of the hearing.”<sup>154</sup> This is because it is normally “necessary only to look forward at the possible effects of the proposed activity on [the] environment.”<sup>155</sup> However, with pre-existing facilities there may be a need to look to “past effects” of the existing activity in order to “add conditions to control future adverse effects [which may include] clean[ing] up of the effects of past activities by the consent-holder which were not covered before.”<sup>156</sup> Thus, on rare

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<sup>146</sup> *Alexandra District Flood Action Society Incorporated v Otago Regional Council* EnvC Christchurch C 102/2005, 20 July 2005 at [75].

<sup>147</sup> At [75].

<sup>148</sup> *Alexandra District Flood Action Society Incorporated v Otago Regional Council (No. 3)* EnvC Christchurch C67/2007, 24 May 2007, Exhibit A, Hawea Water Permit to Dam No. 2001/283, Condition 10.

<sup>149</sup> At Condition 11.

<sup>150</sup> At Condition 10.

<sup>151</sup> *Alexandra District Flood Action Society Incorporated v Otago Regional Council* EnvC Christchurch C 102/2005, 20 July 2005 at [85] - [92].

<sup>152</sup> For the complexity of jurisdiction as to which regulatory body regulates hydroelectric facilities see: *The Exercise of Powers by a Regional Authority and Two Territorial Authorities Regarding Dams at the Deem Stream Hydro Development located at Black Rock Road, Outram*, DepBH, Determination 2011/084, 13 September 2011; *Whether a Building in Close Proximity to a Dam is an Appurtenant Structure, and which Regulatory Body has Jurisdiction in Respect of a Building Consent to Re-Roof the Building*, DepBH, Determination 2009/014, 6 March 2009.

<sup>153</sup> *Alexandra District Flood Action Society Incorporated v Otago Regional Council* EnvC Christchurch C 102/2005, 20 July 2005 at [51].

<sup>154</sup> At [59].

<sup>155</sup> At [66].

<sup>156</sup> At [68].

occasions “the consent authority will need to consider a past environment before modifications were made to it.”<sup>157</sup> In *Alexandra District Flood* Judge Jackson did not need to consider the adverse effect of flooding Lake Dunstan from scratch but did need to consider “flooding of land owned or occupied by other persons [as] an adverse effect.”<sup>158</sup> In addition, the positive effects of existing environment needed to be considered such as “the contributions the Clutha hydro scheme makes to the New Zealand and Otago economies.”<sup>159</sup>

## 9 Landscape

The visual aesthetics of landscape and natural character are a predominantly subjective adverse environmental effect. This is because natural character has both “a perceptual and biophysical component.”<sup>160</sup> In *Director-General of Conservation* with six hydroelectric power stations planned for the Wairau River, on the one hand “the manipulation of flow for electricity generation... must by definition... diminish the natural character of the river.”<sup>161</sup> Water abstraction “is a significant human modification to the river.”<sup>162</sup> Furthermore if a river is difficult to access, relative isolation is an attribute.<sup>163</sup> Obviously, a hydroelectric development may also ruin existing archaeological and historic heritage.<sup>164</sup> On the other hand, the Wairau river was already substantially modified “due to historical river catchment and flood protection works.”<sup>165</sup> Notably, “[t]he conversion of pastoral land to more intensive uses of viticulture and dairying adds to the industrialisation of this working landscape.”<sup>166</sup> Casual users “are unlikely to be aware of difference in the flows / volumes of the river under the propos[al].”<sup>167</sup> The river consequently was able to accommodate the scheme.<sup>168</sup>

## 10 Water Conservation Orders

If a water conservation order is in place, the potential for hydroelectric development is limited. *Talley v Minister for the Environment* attempted to challenge a water conservation

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<sup>157</sup> At [66].

<sup>158</sup> At [73].

<sup>159</sup> At [74].

<sup>160</sup> *Director-General of Conservation (Nelson-Marlborough Conservancy) v Marlborough District Council* [2010] NZEnvC 403 at [587].

<sup>161</sup> At [564].

<sup>162</sup> At [564].

<sup>163</sup> At [609].

<sup>164</sup> *Alexandra District Flood Action Society Incorporated v Otago Regional Council* EnvC Christchurch C 102/2005, 20 July 2005 at [273]-[277]; *Alexandra District Flood Action Society Incorporated v Otago Regional Council (No. 3)* EnvC Christchurch C67/2007, 24 May 2007, Exhibit A, Hawea Water Permit to Dam No. 2001/283, Condition 16; Hawea Discharge Permit to Discharge Permit No. 2001/392, Condition 15; Clyde Water Permit to Dam No. 2001/385, condition 16; Clyde Discharge Permit to Discharge Water No. 2001/393, Condition 12; Roxburgh Water Permit to Dam No. 2001/386, Condition 15; Roxburgh Discharge Permit to Discharge Water No. 2001/394, Condition 14.

<sup>165</sup> *Director-General of Conservation (Nelson-Marlborough Conservancy) v Marlborough District Council* [2010] NZEnvC 403 at [604].

<sup>166</sup> At [617].

<sup>167</sup> At [612].

<sup>168</sup> At [617]-[619].

order in respect of the Gowan River as a tributary of the Buller River.<sup>169</sup> The order was made in 1987, with a recommendation to the Minister for the Environment in 1996 and the gazetting of that order in 2001.<sup>170</sup> Prior to the gazetting, Talley applied to the Tasman District Council for a run of the river power scheme.<sup>171</sup> He also applied to the High Court for a setting aside of the order because he argued that it was unreasonably granted due to delay and that the order was ultra vires for protecting any change in the natural flow from being greater than 15 per cent.<sup>172</sup> Ronald Young J held that although s 21 of the RMA 1991 protects against unreasonable delay, such rights were not personal to Talley.<sup>173</sup> Nor was the granting of the order ultra vires. Rather Talley had the opportunity to apply for a variation of the order under s 216.<sup>174</sup> The Minister, however, declined to amend to the water conservation order and the proceedings were referred to the Environment Court.<sup>175</sup> In *Re Talley*, Judge Smith found that the concessions needed “to achieve the level of abstraction to provide for the availability and reliability of supply sought... would compromise the conservation purpose of the order.”<sup>176</sup>

## 11 Recreational Activities

The adverse environmental effect of the proposed flow regime on the recreational activities of canoeing, kayaking and rafting was a key issue in the variation to the Buller River water conservation order in *Re Talley*. Judge Smith found that it was erroneous to assume “that the rafting characteristic relates only to, water volume [and] by restoring that temporarily, the outstanding rafting characteristic is protected.”<sup>177</sup> Rather, the “intake and tailrace structures [of the hydroelectric scheme] are likely to compromise the rafting experience, even if there was a minimal effect on the flows in the river.”<sup>178</sup> This was because the “intake or deflection structures [have the potential to] intrude into the river visually to the extent it reduces wild and scenic values.”<sup>179</sup> Additionally, any rapid change in river flows had the potential to compromise recreational safety.<sup>180</sup> Reducing the usual flow would have “significant impacts”<sup>181</sup> which would “include effects on the channel cross-section, meandering pattern and braided river channel”<sup>182</sup> with a corresponding “reduction and narrowing of the various river channels”<sup>183</sup> as the “lower flows [would have difficulty]

<sup>169</sup> *Michael Anthony Talley v Minister for the Environment* HC Blenheim CP 5/01, 27 February 2002.

<sup>170</sup> Nolan, above n 49, at 581.

<sup>171</sup> *Michael Anthony Talley v Minister for the Environment* HC Blenheim CP 5/01, 27 February 2002 at [17].

<sup>172</sup> At [4].

<sup>173</sup> At [42]; RMA 1991, s 21.

<sup>174</sup> RMA 1991, s 216.

<sup>175</sup> *Re Talley* EnvC Christchurch C 106/2006, 11 August 2006 at [3].

<sup>176</sup> *Re Talley* EnvC Christchurch C 102/07, 3 August 2007 at [242].

<sup>177</sup> At [234].

<sup>178</sup> At [238].

<sup>179</sup> At [243].

<sup>180</sup> At [231].

<sup>181</sup> At [243].

<sup>182</sup> At [243].

<sup>183</sup> At [235].



transport[ing] bed material.”<sup>184</sup> The Court was cautious to vary an order that had been the subject to extensive evidence.<sup>185</sup>

## 12 Maori

Lastly, the adverse environmental effect of hydroelectric development on Maori spirituality presents a challenge. In *Ngati Rangi Trust v Manawatu Wanganui Regional Council*, Genesis Power applied for renewal of its resource consents for the Tongariro development.<sup>186</sup> Its Western Diversion diverts water “from five tributaries and the headwaters of the W[h]anganui River.”<sup>187</sup> For the Whanganui iwi “the River cannot be separated from the people nor the people from the River [as the two are tied] physically, spiritually and culturally.”<sup>188</sup> This means that the “severing of the headwaters of their rivers is sacrilege.”<sup>189</sup> Moreover, for Maori “[private] management of their headwaters is in direct conflict with their claim... upheld by the Waitangi Tribunal.”<sup>190</sup> Judge Whiting in the Environment Court found himself in a difficult position because “[n]o witness [could explain], other than full restoration of flow, [how] to ameliorate the spiritual loss.”<sup>191</sup> Thus, Judge Whiting decided to reduce the term of the resource consents from 35 to 10 years “[t]o enable a proper assessment of cultural effects and determine appropriate [mitigation] measures [and to] enable the consents to be fully reassessed, following a settlement... of their Waitangi Tribunal claim.”<sup>192</sup>

Genesis Power appealed to the High Court.<sup>193</sup> Genesis Power submitted that “the meeting of the minds” requirement that both parties “explore the variety of options... that will assist in addressing values requir[ing] protection” amounted to an improper purpose.<sup>194</sup> Wild J allowed the appeal. His Honour found that the Environment Court “saw the 10 year term as a means of drawing the opposing parties together [as] mitigating [adverse] effects.”<sup>195</sup> This was illegitimate because the impact of the development on the environment was understood.<sup>196</sup> For Wild J, “Maori culture and spiritual values will... remain constant over the next 35 years.”<sup>197</sup> The submission was that “the Environment Court had abdicated its decision

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<sup>184</sup> At [236].

<sup>185</sup> At [244].

<sup>186</sup> *Ngati Rangi Trust v Manawatu-Wanganui Regional Council* EnvC Auckland A 067/2004, 18 May 2004.

<sup>187</sup> Martin, above n 25, at 222.

<sup>188</sup> *Ngati Rangi Trust v Manawatu-Wanganui Regional Council* EnvC Auckland A 067/2004, 18 May 2004 at [88].

<sup>189</sup> At [93].

<sup>190</sup> At [86].

<sup>191</sup> At [437].

<sup>192</sup> At [442].

<sup>193</sup> *Ngati Rangi Trust v Genesis Power Limited* HC Wellington CIV 2004-485-1139, 29 August 2006.

<sup>194</sup> *Ngati Rangi Trust v Manawatu-Wanganui Regional Council* EnvC Auckland A 067/2004, 18 May 2004 at [459].

<sup>195</sup> *Ngati Rangi Trust v Genesis Power Limited* HC Wellington CIV 2004-485-1139, 29 August 2006 at [27].

<sup>196</sup> At [41].

<sup>197</sup> At [41].

making role and, effectively, had directed a mediation.”<sup>198</sup> What occurred was “a flawed decision” resulting Maori not participating.<sup>199</sup> The Court “should not permit a party to take advantage of either its own wrong or its own default.”<sup>200</sup> This was upheld in the Court of Appeal. Chambers J held that there would be no “unpredictable future change in the relevant Maori values [as] the Maori values... are entirely historical.”<sup>201</sup>

In the author’s view, the decisions take an inadequate view of Maori values. Despite the constraints of High Court review,<sup>202</sup> the wide resource consent term discretion,<sup>203</sup> and the explicit protection of Maori values<sup>204</sup> the High Court entered into factual disputes as to the need to protect Maori values.<sup>205</sup> For instance, Wild J found contrary to the Environment Court<sup>206</sup> the fact that only Maori “refus[ed] to engage in th[e RMA 1991] process.”<sup>207</sup> The High Court, therefore, was simply challenging a discretion and this does not constitute a reviewable error of law.<sup>208</sup> Importantly, any adverse environmental effect of the future can only be determined through adverse environmental effects of the past. That is, in order to predict the future it is necessary to consider the past. Grievances do not exist in a historical vacuum and will often change dramatically over time. Time heals. Contrary to Wild J’s contention, the adverse environmental effects were uncertain because the effect on Maori spirituality was uncertain.<sup>209</sup> As Judge Whiting noted the diversion of waters “*has had and continues to have* deleterious effects on the cultural and spiritual values of [Maori].”<sup>210</sup> Finally, statements that no consultation is required<sup>211</sup> paints a distorted picture of civil procedure because each party must submit clear and separate pleadings refining the issues for determination. If lacking, more explicit pleading may be required.<sup>212</sup> This is all that was meant with the “meetings of the minds” construct.<sup>213</sup> The High Court and Court of Appeal found an abdication of discretion when in reality at issue was a jurisdictional clash between the Environment Court’s review powers and a Waitangi Tribunal report.

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<sup>198</sup> At [50].

<sup>199</sup> At [57].

<sup>200</sup> At [71].

<sup>201</sup> *Ngati Rangi Trust v Genesis Power Limited* [2009] NZCA 222 at [64].

<sup>202</sup> RMA 1991, s 299.

<sup>203</sup> RMA 1991, s 123.

<sup>204</sup> RMA 1991, ss 5, 6(e), 7(a) and 8.

<sup>205</sup> *Ngati Rangi Trust v Genesis Power Limited* HC Wellington CIV 2004-485-1139, 29 August 2006 at [86]-[87].

<sup>206</sup> *Ngati Rangi Trust v Manawatu-Wanganui Regional Council* EnvC Auckland A 067/2004, 18 May 2004 at [466].

<sup>207</sup> *Ngati Rangi Trust v Genesis Power Limited* HC Wellington CIV 2004-485-1139, 29 August 2006 at [62].

<sup>208</sup> RMA 1991, s 299.

<sup>209</sup> *Ngati Rangi Trust v Genesis Power Limited* HC Wellington CIV 2004-485-1139, 29 August 2006 at [40].

<sup>210</sup> *Ngati Rangi Trust v Manawatu-Wanganui Regional Council* EnvC Auckland A 067/2004, 18 May 2004 at [331].

<sup>211</sup> RMA 1991, sch 4 cl 1(h).

<sup>212</sup> High Court Rules 2009, r 5.21; District Court Rules 2009, r 1.6; RMA 1991, s 278; Andrew Green “Pleadings in the Environment Court” (2007) 7 BRMB 49.

<sup>213</sup> *Ngati Rangi Trust v Genesis Power Limited* [2009] NZCA 222 at [30].

## *D Conclusion*

Pre-existing hydroelectric facilities form the bulk of New Zealand's renewable electricity generation. The development of these facilities has been contentious. Alternative use of water is increasingly seeing conflicts over the rights to such water. These rights to water are based on the premise that ownership of water in its natural state at common law is impossible but Maori have asserted ownership under the doctrine of aboriginal title anyway. When these conflicts are tied to the modern assessment of environmental effects, hydroelectric development has fallen into disfavour. Hydroelectric facilities can reduce groundwater and surface water quality, allow the growth of objectionable flora, risk bird life through increased predation, destroy fish habitat and processes, create sediment build up, generate erosion and dust, transform landscapes, obstruct recreational activities, and violate Maori values connected to water. Even though these adverse environmental effects can be overcome, in light of the increased use of water conservation orders for the protection of existing water bodies any extension of hydroelectricity in New Zealand is limited.

## *IV Geothermal Resources*

### *A Introduction*

The heat provided from geothermal resources can reduce greenhouse gas emissions through electricity generation. New Zealand has taken advantage of these resources and Wairakei was the world's first wet steam geothermal power station. While geothermal power plants are developing, Maori dispute ownership of the geothermal resource. Further barriers to development are exemplified through the two decade long litigation between Alistair McLachlan and state-owned enterprises over the control of geothermal resources. These conflicts have arguably inhibited sustainable use of geothermal resources. As an assessment of environmental effects is analysed interference with the geothermal resource can result in subsidence, hydrothermal eruptions, problems with reinjection and contaminants. It alters tourism potential, creates odour discharges, fills the landscape with pipes and intrudes on Maori metaphysical forces. Although progress is being made to resolve the ongoing disputes and to overcome adverse environmental effects, these constraints delay the development of geothermal resources for electricity generation in New Zealand.

### *B History of Geothermal Resource Development in New Zealand*

It is well known that New Zealand's active geothermal fields are caused by the collision of two tectonic plates. Maori were first to utilise this geothermal resource for cooking, food preservation, washing, bathing, heating, healing, mining, and for medicinal purposes.<sup>214</sup> Maori also used the pools for birthing, preparation for burial, burial and ritual killings.<sup>215</sup> Maori would "name every hot pool, mud pool, geyser, fissure, and stream" with each assigned a different purpose.<sup>216</sup> Hence, some people but not others would have certain rights over certain pools in a complex tapestry of Maori custom.<sup>217</sup> The Maori words waiariki (chiefly waters or warm water pools), ngawha (boiling water pools), and puia (a geyser or cone-shaped feature) are but an indication of the greater genealogical ancestry that Maori associate with geothermal resources. As such, despite the Crown's alienation of geothermal resources for tourism, Maori have vigorously sought to retain geothermal resources through Maori customary ownership as a "source of spiritual, physical, and emotional sustenance."<sup>218</sup>

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<sup>214</sup> Waitangi Tribunal *He Maunga Rongo: The Report on Central North Island Claims Stage 1 Volume 4* (2<sup>nd</sup> ed, Wai 1200, 2008) at 1478; See also: Evelyn Stokes *The Legacy of Ngatoroirangi: Maori Customary Use of Geothermal Resources* (University of Waikato, Hamilton, 2000).

<sup>215</sup> At 1478.

<sup>216</sup> At 1476.

<sup>217</sup> At 1478.

<sup>218</sup> At 1542.

By 1951 well development was underway at the geothermal field of Wairakei near Taupo to turn geothermal energy into electricity.<sup>219</sup> Unlike other geothermal systems, Wairakei is a wet steam system being water dominated so engineers had to devise a system to separate the steam from the geothermal water. The Wairakei station was also sited on the banks of the Waikato River to take advantage of cooling water as well as to enable the discharge of waste water. Notably, several blowouts occurred during construction. On 4 January 1960, a hydrothermal eruption occurred when the casing of a bore broke which caused a crater half an acre in area.<sup>220</sup> On the 29 February 1960, a hydrothermal eruption occurred at a different bore when its poorly cemented casing gave way.<sup>221</sup> The hydrothermal eruption and significant seismic activity that followed created a crater about 20 metres deep and about 70 metres across which has been inactive since 1973.<sup>222</sup>

Direct use of geothermal energy for heating, by contrast, had established itself from colonisation. In Rotorua, shallow bores to obtain hot water were used for heating homes, tourist accommodation, and hospitals. In nearby Kawerau a mill was built in 1950s to mill the Kaingaroa forest on land acquired from Maori.<sup>223</sup> Geothermal energy was to operate the mill, dry the products produced and perhaps generate electricity for the new town.<sup>224</sup> Without effective legal controls, unsustainable use of geothermal energy became inevitable. In Rotorua, the Crown delegated control over geothermal bores in the Rotorua City Geothermal Empowering Act 1967 but by 1987 “geothermal activity at Whakarewarewa and Ohinemutu-Tarewa [were] in decline” as a number of geysers had failed and hot springs ceased to flow.<sup>225</sup> A prohibition on the use of bores within 1.5 kilometre radius around the Pohutu geyser was imposed with all bores to be licensed.<sup>226</sup>

There has been accelerated growth of geothermal power plants in the last two decades. New Zealand’s second geothermal electric power plant, Ohaaki, was also built on land leased from Maori.<sup>227</sup> Modern geothermal plants such as the 1989 Ohaaki power plant are significantly different from Wairakei due a cooling tower and with greater requirements for full reinjection of all geothermal liquids. Further developments occurred in 1996 with the

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<sup>219</sup> Martin, above n 25, at 259.

<sup>220</sup> Richard Bolton and others “Dramatic Incidents during Drilling at Wairakei Geothermal Field” (2009) 38 *Geothermics* 40 at 41.

<sup>221</sup> At 43-44.

<sup>222</sup> At 46.

<sup>223</sup> Waitangi Tribunal *Central North Island*, above n 214, at 1619-1620; Geothermal Energy Act 1953; Tasman Pulp and Paper Company Enabling Act 1954.

<sup>224</sup> At 1619.

<sup>225</sup> At 1622.

<sup>226</sup> At 1622; *Rotorua Geothermal Users Association v Minister of Energy* HC Wellington CP543/86, 13 May 1987; *Wharepaina Thermal Club (Inc) v Minister of Energy & Attorney-General* HC Hamilton M181/87, 5 November 1987.

<sup>227</sup> Martin, above n 25, at 265; Evelyn Stokes *Ohaaki: A Power Station on Maori Land* (University of Waikato, Hamilton, 2004).

building of the Poihipi power station by Alistair McLachlan and Mercury Energy Ltd.<sup>228</sup> Rotokawa was developed in 1997,<sup>229</sup> Ngawha in 1998,<sup>230</sup> and in 2000 the first Mokai station was built in conjunction with the Tuaropaki Power Company.<sup>231</sup> Kawerau has been gradually developed and its largest development occurred in 2008 following extensive negotiations.<sup>232</sup> In 2010, Mighty River Power developed Nga Awa Purua in association with Tauhara North No.2 Trust.<sup>233</sup> An associated Ngatamariki power plant is also anticipated.<sup>234</sup> Te Mihi is to replace the aging Wairakei plant in 2011 with efficient technology<sup>235</sup> and in the nearby Tauhara field, Te Huka has been commissioned with an adjoining power plant Tauhara II consented.<sup>236</sup>

### *C Ownership of Geothermal Resources*

At common law geothermal resources are incapable of ownership until capture and the rights to geothermal resources run with land ownership. This legal position is amended by s 3 of the Geothermal Energy Act 1953 as carried over in s 354 of the RMA 1991 which states that the sole right to tap and use geothermal energy, falling short of explicitly conferring ownership, is vested in the Crown.<sup>237</sup> Under the RMA 1991, geothermal energy is defined as “energy derived or derivable from and produced within the earth by natural heat phenomena; and includes all geothermal water.”<sup>238</sup> Geothermal water is defined in that Act as “water heated within the earth by natural phenomena to a temperature of 30 degrees Celsius or more.”<sup>239</sup> Where an activity relating to geothermal energy or water is allowed by a regional plan, a proposed regional plan or a resource consent, such will be sufficient authorisation.<sup>240</sup> An exception applies where geothermal energy or water is “used in accordance with tikanga Maori for the communal benefit of the tangata whenua of the area and does not have an adverse effect on the environment.”<sup>241</sup> It has been held, nonetheless, that when considering a resource consent application, the exception is inapplicable because if the resource consent is

<sup>228</sup> Brian White “An Update on Geothermal Energy in New Zealand” (2006) New Zealand Geothermal Association <[www.nzgeothermal.org.nz](http://www.nzgeothermal.org.nz)> at 6.

<sup>229</sup> At 7.

<sup>230</sup> At 9.

<sup>231</sup> Colin Harvey and others “2005-2010 New Zealand Country Update” (April 2010) New Zealand Geothermal Association <[www.nzgeothermal.org.nz](http://www.nzgeothermal.org.nz)> at 4.

<sup>232</sup> Brian White “Upcoming Geothermal Energy Development in New Zealand” (October 2008) New Zealand Geothermal Association <[www.nzgeothermal.org.nz](http://www.nzgeothermal.org.nz)> at 8.

<sup>233</sup> At 8.

<sup>234</sup> Harvey, above n 231, at 4.

<sup>235</sup> White, above n 232, at 6.

<sup>236</sup> *Final Report and Decision of the Board of Inquiry into the Tauhara II Geothermal Development Project* (10 December 2010) at [35].

<sup>237</sup> RMA 1991, s 354; Geothermal Energy Act 1953, s 3.

<sup>238</sup> RMA 1991, s 2, definition of “geothermal energy”.

<sup>239</sup> RMA 1991, s 2, definition of “geothermal water”.

<sup>240</sup> RMA 1991, s 14(3)(a).

<sup>241</sup> RMA 1991, s 14(3)(c).

granted such an activity is allowed.<sup>242</sup> Such reasoning ignores the existing environment in determining whether any resource consent should be granted at all.

The fact is that geothermal resources are invariably located on, or near, Maori sites of significance.<sup>243</sup> Therefore, in three principal reports on the geothermal resources,<sup>244</sup> the Waitangi Tribunal has described such resources as a taonga (treasure) over which Maori exercise rangtiratanga (chieftainship). Claimants, consequently, have submitted that the purchase of “all significant geothermal features is suspect.”<sup>245</sup> The Crown, according to the Waitangi Tribunal, actively targeted Maori land for geothermal resources for tourism and excluded Maori from rent and royalty payments for the use of the geothermal resource.<sup>246</sup> The Waitangi Tribunal explains that the RMA 1991 “continues to fail to accord Maori sufficient priority” for resource consents to develop geothermal resources because “local and regional authorities are not required to act in a manner consistent the principles of the Treaty.”<sup>247</sup> This appropriation debars Maori from acting in accordance with their customary rights.<sup>248</sup> In order to protect the geothermal resource, Maori have sought declarations that geothermal bores and well-head structures on Maori land are fixtures attached to the land.<sup>249</sup> Although the dispute seems never to have been formally resolved,<sup>250</sup> if previous geothermal legislation is read so as to not to confer Crown ownership, proprietary estoppel would probably succeed in creating such a right in the absence of explicit wording.

As part of settlement for Treaty of Waitangi breaches, lands with geothermal resources have been recommended to be returned to Maori.<sup>251</sup> Like water, settlement has also involved geothermal statutory acknowledgements which recognise the “particular cultural, spiritual, historical, and traditional association with, and use of, the geothermal energy and geothermal water” as specified.<sup>252</sup> In some circumstances, consent authorities must forward a

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<sup>242</sup> *Contact Energy v Waikato Regional Council* EnvC Auckland A4/2000, 24 January 2000 at [107]-[108].

<sup>243</sup> See generally: Richard Boast “Geothermal Resources in New Zealand: A Legal History” (1995) 6 Canterbury LR 1; Shane Heremaia “Maori Ownership of Geothermal Resources and the Resource Management Act 1991: The Rotoma Geothermal Field” (1995) 1(5) NZELR 109; Andrea Tunks “Kaitiakitanga – The Ngawha Geothermal Resource” (1994) 1(4) NZELR 84; Katherine Luketina “The Waikato Regional Geothermal Resource” Waikato Regional Council (21 March 2012) <[www.waikatoregion.govt.nz](http://www.waikatoregion.govt.nz)>.

<sup>244</sup> Waitangi Tribunal *Ngawha Geothermal Resource Report* (Wai 304, 1993); Waitangi Tribunal *Preliminary Report on the Te Arawa Representative Geothermal Claims* (Wai 153, 1993); Waitangi Tribunal *Central North Island*, above n 214.

<sup>245</sup> Waitangi Tribunal *Central North Island*, above n 214, at 1594.

<sup>246</sup> At 1636; Martin de Jong “A Heated Affair: Ownership and Exploitation of New Zealand’s Geothermal Resources” (July 1991) 7 Terra Nova 44 at 45.

<sup>247</sup> Waitangi Tribunal *Central North Island*, above n 214, at 1591.

<sup>248</sup> At 1634.

<sup>249</sup> *Re Tuaropaki E Block* (1994) 66 Taupo MB 156, 13 July 1994; “Tuaropaki E Block” (Aug 1994) Maori LR 3; See also RMA 1991, s 354; Geothermal Energy Regulations 1961, reg 34.

<sup>250</sup> *In Re Tuaropaki E Geothermal Test Wells and the Attorney-General* (1994) 1 Waiariki Appeal MB 24 (1 AP 24); See also Finance Act (No.2) Act 1994.

<sup>251</sup> Waitangi Tribunal *Ngawha*, above n 244, at 151.

<sup>252</sup> Ngati Tuwharetoa (Bay of Plenty) Claims Settlement Act 2005, s 46; Affiliate Te Arawa Iwi and Hapu Claims Settlement Act 2008, s 36.

summary of resource consent applications to the relevant Maori entity which concerns geothermal energy or geothermal water in that entity's region.<sup>253</sup> It is noteworthy, therefore, that Maori names given to power plants is consistent with Maori cooperation with, and interest in, the development of New Zealand's geothermal resources.

# *1 Alistair McLachlan*

Where land has been alienated, the subsequent ownership of that land and priority to the underlying geothermal resource has led to "complex and hard-fought litigation."<sup>254</sup> Case law on geothermal resources is dominated with the two decade long "litigation saga" between Contact Energy Ltd (Contact) formerly Electricity Corporation of New Zealand (ECNZ) and the McLachlans in various guises.<sup>255</sup> From 1965 Alistair and his wife Ava McLachlan owned a sheep and beef farm near Taupo with a secondary business in growing roses<sup>256</sup> along with orchids by making use of the underlying geothermal resources. This farm could be divided into Land A, Land B, and Land C. Land C incorporated what became known as Lots 1 and 2. In the late 1980s the McLachlans decided to build a geothermal power station. The farm was owned by the Waituruturu Trust of which the McLachlans were trustees. The McLachlans needed finance to complete the project so contacted Mercury Network Ltd (Network) which was a wholly owned subsidiary of Mercury Energy Ltd (Vector). Two new companies were formed for the joint venture: Mercury Geotherm Ltd (MGL) (which was owned 67 per cent by Network and 33 per cent by the McLachlans as trustees or beneficially) and Poihipi Land Ltd (PLL) (which is a wholly owned subsidiary of MGL). In essence, the McLachlans transferred all the land to the joint venture (or to the financiers) with Land A being used as the power station site and Land B and Land C leased back to the McLachlans for farming purposes. The lease contained a right of first refusal to buy back the land if it was ever sold.

Litigation between Electricity Corporation of New Zealand (Electricorp or ECNZ) and the McLachlans started in 1989 when Geotherm Energy Ltd (GEL), a company owned by Waituruturu Trust, unsuccessfully challenged ECNZ's entitlement to draw geothermal water for the Wairakei power station.<sup>257</sup> In 1990, GEL applied for taking 44,000 tonnes of geothermal fluid per day for a new power station named Poihipi but was granted only 10,000.<sup>258</sup> ECNZ challenged the application because of its interest in the Wairakei field.

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<sup>253</sup> Ngati Tuwharetoa (Bay of Plenty) Claims Settlement Act 2005, s 51; Affiliate Te Arawa Iwi and Hapu Claims Settlement Act 2008, s 41.

<sup>254</sup> *McLachlan v Mercury Geotherm Ltd (in receivership)* (2006) 7 NZCPR 135 (PC) at [3].

<sup>255</sup> *McLachlan v Mercury Geotherm Ltd (in receivership)* CA 117/05, 4 December 2006 at [1].

<sup>256</sup> *Geothermal Produce New Zealand Ltd v Goldie Applicators Ltd* HC Rotorua A26/81, 17 February 1983; *Attorney-General v Geothermal Produce New Zealand Ltd* [1987] 2 NZLR 348 (CA).

<sup>257</sup> *Special Tribunal of the Waikato Catchment Board v Electricity Corporation of New Zealand Ltd* HC Hamilton M7/89, 9 March 1989; *Waikato Catchment Board (Special Tribunal) v Electricity Corporation of New Zealand* [1989] 2 NZLR 22 (CA).

<sup>258</sup> *Geotherm Energy Ltd v Waikato Regional Council* PT Auckland A22/90, 9 May 1990 at 2.



GEL unsuccessfully applied for disclosure of a ECNZ report.<sup>259</sup> Later, GEL's application for increased take by an interim decision was denied.<sup>260</sup> Frustrated, GEL applied to declare the conduct of ECNZ as anti-competitive as a dominant use of a market position.<sup>261</sup> GEL claimed ECNZ deterred potential specialist advisors, specialist service providers, customers, financiers, and investors from dealing with GEL. They alleged that ECNZ made baseless statutory applications to hinder GEL's planning applications and that ECNZ aimed to prevent GEL from using electrical supply authorities. The High Court and the Court of Appeal refused to strike out all of the statement of claim.<sup>262</sup> ECNZ responded with applications for security of costs<sup>263</sup> and costs<sup>264</sup> in relation to GEL's failure to increase the geothermal take.

By 1996, the proposed Poihipi power station had been built.<sup>265</sup> When Mercury Geotherm Ltd (MGL), a related company, applied for additional resource consents relating to the discharge into the air of contaminants, the Ngati Rauhoto hapu appealed based on inadequate consultation and cultural wellbeing.<sup>266</sup> An application to commence the resource consents was denied because MGL "took a commercial risk in deciding to complete the power station before it had secured all the consents necessary for operating it."<sup>267</sup> MGL was successful in obtaining a priority fixture for an appeal hearing.<sup>268</sup> Ngati Rauhoto sought to relitigate the granting of the Poihipi power station consent but were estopped from averring that the taking of geothermal fluid had not already been decided.<sup>269</sup> Immediately after gaining consents the Poihipi power plant ran into difficulties as the "deep liquid steam wells did not... provide sufficient steam for the power station."<sup>270</sup>

With these problems, Network attempted to appoint receivers in respect of MGL and PLL. The McLachlans successfully applied for an interim injunction to prevent the appointment of receivers<sup>271</sup> but an extension was not granted.<sup>272</sup> Meanwhile the Wairakei power plant had since changed hands from ECNZ to Contact Energy Ltd (Contact). Contact had applied for the establishment of a binary plant at Wairakei to allow for reinjection. MGL

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<sup>259</sup> At 14.

<sup>260</sup> *Geotherm Energy Ltd v Waikato Regional Council* PT Hamilton A58/91, 16 July 1991.

<sup>261</sup> *Geotherm Energy Ltd v Electricity Corporation of New Zealand Ltd* HC Auckland CL101/90, 5 June 1991; *Geotherm Energy Ltd v Electricity Corporation of New Zealand Ltd* [1992] 2 NZLR 641 (CA).

<sup>262</sup> *Geotherm Energy Ltd v Electricity Corporation of New Zealand Ltd* HC Auckland CL101/90, 5 June 1991; *Geotherm Energy Ltd v Electricity Corporation of New Zealand Ltd* [1992] 2 NZLR 641 (CA).

<sup>263</sup> *Geotherm Energy Ltd v Waikato Regional Council* [1994] NZRMA 139 (PT); *Geotherm Exports NZ Ltd v Waikato Regional Council* PT Hamilton A50/94, 23 June 1994.

<sup>264</sup> *Geotherm Energy Ltd v Waikato Regional Council* PT Auckland A34/94, 10 May 1994.

<sup>265</sup> *McLachlan v Mercury Geotherm Ltd (in receivership)* (2006) 7 NZCPR 135 (PC) at [10].

<sup>266</sup> *Ngati Rauhoto Land Rights Committee v Waikato Regional Council* EnvC Auckland A7/97, 28 January 1997 at 4.

<sup>267</sup> At 6.

<sup>268</sup> *Ngati Rauhoto Land Rights Committee v Waikato Regional Council* EnvC Auckland A33/97, 6 March 1997.

<sup>269</sup> *Ngati Rauhoto Land Rights Committee v Waikato Regional Council* EnvC Auckland A065/97, 19 May 1997 at 9.

<sup>270</sup> *McLachlan v MEL Network Ltd* HC Auckland CIV-1998-404-510, 9 December 2004 at [11].

<sup>271</sup> *McLachlan v Mercury Network Ltd* HC Auckland CP476/98, 16 November 1998.

<sup>272</sup> *McLachlan v Mercury Network Ltd* HC Auckland CP476/98, 9 December 1998.

objected because reinjection was to be at a temperature half of that currently being reinjected which was detrimental to the operation of the Poihipi power plant. On the 10 December 1998, Judge Whiting held that Contact's existing consents allowed for reinjection at any temperature and MGL's appeal was struck out.<sup>273</sup> Consequently, on 11 December 1998 Lawrence Chilcott and Peter Chatfield were appointed as receivers in respect of MGL and PLL.<sup>274</sup> The receivers decided to sell Poihipi power plant as well as the leased land to Contact.

The McLachlans retaliated with two simultaneous fronts of litigation. The first set of proceedings involved suing the financiers for contractual, tortious, statutory,<sup>275</sup> and equitable causes of action relating to the failure of the joint venture.<sup>276</sup> Applications for security for costs,<sup>277</sup> discovery,<sup>278</sup> and joinder<sup>279</sup> followed with an attempt to argue limitation as well as delay as an abuse of process on behalf of the financiers which on appeal was rejected in favour of consolidation.<sup>280</sup> The second set of proceedings involved caveats that the McLachlans had lodged which alleged that the right of first refusal in the lease had been triggered. In the High Court, the right of refusal was held not to have been triggered as there was merely an invitation of offers<sup>281</sup> and what had been "sold" to Contact was an option to purchase when the lease was terminated.<sup>282</sup> After determining the areas of the power plant sale and the leased land, Potter J held that accompanying encumbrances over the leased land breached "the leasees' right of quiet enjoyment."<sup>283</sup> Lots 1 and 2 that had not been transferred from Network to MGL in an administrative slip were corrected with a constructive trust in favour of MGL with an equitable lease in favour of the McLachlans.<sup>284</sup> The Court of Appeal redefined the areas subject to the agreements while referring back to the High Court for further consideration the question of whether the right of first refusal had been triggered in relation to Lots 1 and 2.<sup>285</sup> The Privy Council dismissed the appeal.<sup>286</sup> In terms of Lots 1 and 2, Potter J in the High Court held that there was no triggering of the right of first refusal.<sup>287</sup> Contact was held not to be a bona fide purchaser for value.<sup>288</sup> Hence in terms of equitable

<sup>273</sup> *Mercury Geotherm Ltd v Waikato Regional Council* EnvC Auckland A144/98, 10 December 1998.

<sup>274</sup> *McLachlan v Mercury Geotherm Ltd (in receivership)* (2006) 7 NZCPR 135 (PC) at [10].

<sup>275</sup> Companies Act 1993, s 174.

<sup>276</sup> *McLachlan v MEL Network Ltd* HC Auckland CIV-1998-404-510, 9 December 2004 at [44].

<sup>277</sup> *McLachlan v MEL Network Ltd* HC Auckland CP476/98, 1 February 2002; *McLachlan v MEL Network Ltd* (2002) 16 PRNZ 747; *McLachlan v MEL Network Ltd* CA158/05, 28 February 2006.

<sup>278</sup> *McLachlan v MEL Network Ltd* HC Auckland CIV-1998-404-253, 22 September 2006.

<sup>279</sup> *McLachlan v MEL Network Ltd* HC Auckland CIV-1998-404-510, 9 December 2004.

<sup>280</sup> *McLachlan v Vector Ltd* HC Auckland 2004-404-7053, 7 July 2005; *McLachlan v Vector Ltd* CA157/05, 28 February 2006.

<sup>281</sup> *Mercury Geotherm Ltd (in receivership) v McLachlan* HC Auckland M129-IM00, 14 June 2002 at [61].

<sup>282</sup> At [63].

<sup>283</sup> At [157].

<sup>284</sup> At [152].

<sup>285</sup> *McLachlan v Mercury Geotherm Ltd (in receivership)* CA142/02, 28 August 2003 at [92].

<sup>286</sup> *McLachlan v Mercury Geotherm Ltd (in receivership)* (2006) 7 NZCPR 135 (PC).

<sup>287</sup> *Mercury Geotherm Ltd (in receivership) v McLachlan* [2006] 1 NZLR 258 (HC) at [109].

<sup>288</sup> At [408].

priorities as the conduct of the McLachlans was not disentitling, Contact acquired Lots 1 and 2 subject to the McLachlans equitable lease.<sup>289</sup> The Court of Appeal rejected the appeal.<sup>290</sup>

In a deed of settlement signed in 2006, the McLachlans abandoned the damages proceedings against the financiers for appointing receivers and abandoned any further appeal rights in relation to the lease.<sup>291</sup> In signing the deed of settlement, the McLachlans transferred all their shares in MGL to Network which under the lease amounted to termination of the lease. In the event of termination, Contact's option to purchase was activated. Nonetheless, Clause 5 of the deed provided that "the rights and obligations under the Lease shall continue unaffected."<sup>292</sup> In the High Court, Allan J reasoned that when the transfer of shares took place, the lease was terminated and Clause 5 of the deed of settlement could not save the lease. Arguments based on an implied term, rectification, mistake, estoppel, and relief against forfeiture were all rejected. The lease was also held to be void for having an uncertain term.<sup>293</sup> The conclusion to this litigation where the right of first refusal did not protect the interests of the McLachlans and the lease of the McLachlans was terminated, serves to demonstrate, more than anything else, that Contact retained an illustrious "competitive advantage over the McLachlans."<sup>294</sup>

## 2 *Conflict over Resource*

This dispute entrenches the "first-in first-served" basis for resource allocation in New Zealand rather than a sustainable allocation. A related case, *Geotherm Group Ltd v Waikato Regional Council*, provides a potent example.<sup>295</sup> After the receivers sold the Poihipi power plant to Contact, the McLachlans decided to use a related company Geotherm Group Ltd (GGL) to apply for another geothermal power station on Tukairangi Road on 29 March 2001. On 30 March 2001, Contact submitted a comprehensive suite of resource consents for renewal. Subsequently, Contact's resource consents became notifiable prior to GGL's. GGL's application then became ready for a hearing prior to Contact's. Despite the contention that in order to be "served" a hearing date was necessary, Judge Whiting held that for priority "notifiability is the critical step" as hearing dates could oscillate.<sup>296</sup> Judge Whiting's comments are worth repeating:<sup>297</sup>

In my view, notifiability should be the starting point, but not necessarily always the determining factor. [T]he question of priority [should be] underlain by fairness. Having

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<sup>289</sup> At [400]-[401].

<sup>290</sup> *McLachlan v Mercury Geotherm Ltd (in receivership)* CA 117/05, 4 December 2006 at [43] and [67].

<sup>291</sup> *Chilcott v McLachlan* HC Auckland CIV-2007-404-2796, 22 December 2009 at [30].

<sup>292</sup> At [30].

<sup>293</sup> At [108]-[112]; Compare: Property Law Act 2007, s 212.

<sup>294</sup> *Mercury Geotherm Ltd (in receivership) v McLachlan* [2006] 1 NZLR 258 (HC) at [317].

<sup>295</sup> *Geotherm Group Ltd v Waikato Regional Council* (2003) 9 ELRNZ 75 (EnvC); *Geotherm Group Ltd v Waikato Regional Council* [2004] NZRMA 1 (HC).

<sup>296</sup> *Geotherm Group Ltd v Waikato Regional Council* (2003) 9 ELRNZ 75 (EnvC) at [40].

<sup>297</sup> At [47].

achieved priority, by driving the application [to notification], an applicant cannot then rest on its laurels. If there is an unreasonable delay... [a]nother applicant second in time [may] be able to rely on [s] 21 [of the RMA 1991] and thus jump the queue.

In these observations, the analogy of competing equitable priorities displaced by disentitling conduct such as delay discussed in *Mercury Geotherm Ltd (in receivership) v McLachlan* is representative of a property rights approach to the interpretation of resource allocation.<sup>298</sup> Indeed, there is irony that the courts have since replaced priority accorded to notification with the need to be the first to file.<sup>299</sup> Technically, GGL was first to file. Drawing upon the McLachlan experience, a strong argument can be put that the “first-in first served” principle of resource allocation under the RMA 1991 is not only environmentally unsustainable<sup>300</sup> but is capable of being anti-competitive in breach of the Commerce Act 1986 if wielded unreservedly. The fear of gazumping large projects may in fact lead to large projects abusing the market as the McLachlan litigation demonstrates.<sup>301</sup>

In order to avoid abusing a market position, the RMA 1991 seeks to coextensively discourage the use of trade competition in appeals.<sup>302</sup> Nonetheless, how well the RMA 1991 prevents its use for anti-competitive purposes is debatable even in light of 2009 amendments.<sup>303</sup> In the context of geothermal resources, an appeal was sought to be struck out on this ground in *Fletcher Challenge Energy Power Generation Ltd v Waikato Regional Council*.<sup>304</sup> This recognised that an “ulterior motive motivated by trade competition” will often be present due to the value of geothermal resources especially for electricity generation.<sup>305</sup> There will always be a “trade advantage” in the activities of competitors.<sup>306</sup> Provided any objector confines itself to genuine resource management concerns and avoids acting “merely [in] a guise for opposing [due to] trade competit[ion]”, such concerns are doubtful to an abuse of the courts process if they seem “serious and sensible.”<sup>307</sup>

## *D Assessment of Environmental Effects of Geothermal Development*

### *1 Subsidence*

A primary adverse environmental effect when geothermal water is extracted from a geothermal field but not reinjected is the “compaction of the [overlying] porous rock in

<sup>298</sup> *Mercury Geotherm Ltd (in receivership) v McLachlan* [2006] 1 NZLR 258 (HC).

<sup>299</sup> *Central Plains Water Trust v Ngai Tahu Properties Ltd* [2008] NZRMA 200 (CA).

<sup>300</sup> Brunette, above n 94.

<sup>301</sup> *Central Plains Water Trust v Ngai Tahu Properties Ltd* [2008] NZRMA 200 (CA) at [95].

<sup>302</sup> RMA 1991, ss 308A-308I.

<sup>303</sup> RMA 1991, ss 308A-308I; Jonathan Cutler “The Use of the Resource Management Act 1991 for Trade Competition Purposes” (1999) 3 NZJEL 67.

<sup>304</sup> *Fletcher Challenge Energy Power Generation Limited v Waikato Regional Council* EnvC Auckland A 109/98, 2 September 1998.

<sup>305</sup> At [38].

<sup>306</sup> At [38].

<sup>307</sup> At [32].

response to a decline of fluid pressure” which results in subsidence.<sup>308</sup> In the Wairakei-Tauhara geothermal system, total subsidence due to the geothermal extraction has exceeded 15 metres at the centre of the Wairakei subsidence bowl.<sup>309</sup> This subsidence has been described as “by far the largest in the world caused by geothermal extraction” due to a peak of 25 bars of pressure loss over a total geographical area of approximately 84 square kilometres.<sup>310</sup> This geothermal system partly lies under the Taupo township.<sup>311</sup> Differential subsidence is truly problematic by effectively warping structures. Buildings, poles, fences, water pipes, drains, manholes, curbs, cables, wells, roads, and footpaths are, thus, prone to growing deterioration.<sup>312</sup> About 48 buildings are currently being affected by subsidence.<sup>313</sup> In this way, Contact is burdened with a requirement to remediate more than minor damage caused by the Wairakei-Tauhara system.<sup>314</sup>

## 2 *Hydrothermal Eruptions*

Extraction of geothermal water without reinjection causes a drawdown in geothermal reservoir pressure, inflating the temperature of the remaining geothermal resource, increasing steam activity and thereby fostering a more productive field for electricity generation. In the Tauhara field, the heat rise meant domestic bores increased by up to 60°C during the 1980s although the temperature has since stabilised or declined.<sup>315</sup> Steaming ground will increase which when combined with low atmospheric pressure, blockage of a vent, or heavy rainfall after a prolonged dry period may lead to hydrothermal eruptions.<sup>316</sup> Such hydrothermal eruptions occurred in the Broadlands Road Thermal Reserve in 1974 and 1981 (the Pony Club eruptions) with a smaller eruption at Spa Park in 1974 and a fairly violent eruption at Alum Lakes in 2001.<sup>317</sup> Evidence has also been led of scalding water from cold taps, steaming toilet bowls, hot lawns, and animals falling into fumeroles as a result of Wairakei-Tauhara activities.<sup>318</sup> In the event of hydrothermal eruptions, however, such eruptions are expected to be “insignificant and temporary.”<sup>319</sup>

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<sup>308</sup> *Geotherm Group Ltd v Waikato Regional Council* EnvC Auckland A47/2006, 13 April 2006 at [140].

<sup>309</sup> At [152].

<sup>310</sup> At [145]-[151].

<sup>311</sup> *Rotokawa Joint Venture Ltd v Waikato Regional Council* EnvC Auckland A 41/2007, 18 May 2007 at [41].

<sup>312</sup> *Contact Energy Ltd v Waikato Regional Council* EnvC Auckland A 4/2000, 24 January 2000 at [171]-[172].

<sup>313</sup> *Rotokawa Joint Venture Ltd v Waikato Regional Council* EnvC Auckland A 41/2007, 18 May 2007 at [254].

<sup>314</sup> At [424].

<sup>315</sup> *Contact Energy Ltd v Waikato Regional Council* EnvC Auckland A 4/2000, 24 January 2000 at [155].

<sup>316</sup> At [157].

<sup>317</sup> *Final Report and Decision of the Board of Inquiry into the Tauhara II Geothermal Development Project* (10 December 2010) at [249]; *Geotherm Group Ltd v Waikato Regional Council* EnvC Auckland A 47/2006, 13 April 2006 at [209].

<sup>318</sup> *Geotherm Group Ltd v Waikato Regional Council* EnvC Auckland A 47/2006, 13 April 2006 at [174].

<sup>319</sup> *Contact Energy Ltd v Waikato Regional Council* EnvC Auckland A 4/2000, 24 January 2000 at [247].

### 3 *Reinjection*

If reinjection is chosen as preferable to subsidence, a myriad of alternative problems arise. Reinjection will lead to a cooling of the geothermal field lowering production and thereby any electricity generated. If reinjection is targeted in a particular area, quenching can occur where there is a wholesale cooling by saturation leading to a collapse in production from that particular area.<sup>320</sup> Reinjection also logically increases reservoir pressure. If high temperature water is returned to the geothermal reservoir, the pressure rise can lead to the boiling liquid entering groundwater giving rise for the potential for hydrothermal eruptions to be triggered.<sup>321</sup> Reinjection also involves “a small risk of causing induced seismicity especially around reinjection wells.”<sup>322</sup> For the Wairakei power plant, geothermal water was traditionally discharged into the Waikato River.<sup>323</sup> As a result cascade users who use the geothermal water from the power plant include a prawn park and tourist infrastructure.<sup>324</sup> Thus, the costs of reinjection are uneconomic.<sup>325</sup> 2006 appeals relating to the geothermal energy sections of a Waikato Regional Council Policy Statement and Proposed Regional Plan requiring full reinjection were dismissed in favour of “integrated and adaptive management” of the geothermal resource.<sup>326</sup>

### 4 *Contaminants*

Interference with geothermal water through extraction and reinjection may change the concentrations of various contaminants in the geothermal reservoir.<sup>327</sup> Geothermal water contains mineral salts, “silica, arsenic, boron, mercury, and hydrogen sulphide.”<sup>328</sup> Concentrations vary according to source and when steam is condensed following use in a geothermal power station, there are traditionally high rates of mercury and hydrogen sulphide.<sup>329</sup> In *Ngawha Geothermal Resource Company Ltd v Northland Regional Council* (*Ngawha*), evidence suggested that before the operation of the geothermal power station, nearby geothermal pools were said to have a healing effect and after children were suffering from skin ailments from bathing.<sup>330</sup> Interestingly, an application for adjournment to call medical evidence about the effects of toxic mercury poisoning was declined.<sup>331</sup> The Waitangi

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<sup>320</sup> *Geotherm Group Ltd v Waikato Regional Council* EnvC Auckland A 47/2006, 13 April 2006 at [138].

<sup>321</sup> At [218].

<sup>322</sup> *Contact Energy Ltd v Waikato Regional Council* EnvC Auckland A 4/2000, 24 January 2000 at [241].

<sup>323</sup> *Geotherm Group Ltd v Waikato Regional Council* EnvC Auckland A 47/2006, 13 April 2006 at [244].

<sup>324</sup> *Rotokawa Joint Venture Ltd v Waikato Regional Council* EnvC Auckland A 41/2007, 18 May 2007 at [421].

<sup>325</sup> *Geotherm Group Ltd v Waikato Regional Council* EnvC Auckland A 47/2006, 13 April 2006 at [249].

<sup>326</sup> At [337].

<sup>327</sup> *Contact Energy Ltd v Waikato Regional Council* EnvC Auckland A 4/2000, 24 January 2000 at [158] –[159].

<sup>328</sup> *Geotherm Group Ltd v Waikato Regional Council* EnvC Auckland A 47/2006, 13 April 2006 at [223].

<sup>329</sup> At [223].

<sup>330</sup> *Ngawha Geothermal Resource Company Ltd v Northland Regional Council* EnvC Auckland A 117/2006, 30 August 2006 at [67].

<sup>331</sup> *Ngawha Geothermal Resource Company Ltd v Northland Regional Council* EnvC Auckland A 92/2006, 7 July 2006 at [3]; *Ngawha Geothermal Resource Company Ltd v Northland Regional Council* EnvC Auckland A 117/2006, 30 August 2006 at [65].

Tribunal records that “concentrations of chemicals designed to keep the injection pipes clean make [geothermal pools] impossible to utilise.”<sup>332</sup>

If geothermal water is irrigated onto land, increased contaminants in plants and animals will directly affect humans.<sup>333</sup> If geothermal water is reinjected into deep aquifers where such geothermal water has the potential to rise and infiltrate shallower freshwater aquifers, the same affliction will occur. If geothermal water is discharged into waterways such as rivers, a broader range of adverse environmental effects will be noticed. As the Wairakei power plant discharges into the Waikato River, the concentrations of mercury, hydrogen sulphide, and arsenic as well as temperature exceed natural levels.<sup>334</sup> Therefore, “the current discharge has adversely affected fish populations downstream of the discharge.”<sup>335</sup> Hamilton and Auckland use the Waikato River as a water supply but such geothermal discharges are remedied by the treatment systems.<sup>336</sup> Hence, disposal of the geothermal wastewater through reinjection to avoid contamination is typically an environmental necessity.<sup>337</sup> In addition, there are progressively tighter environmental controls through resource consent conditions to avoid contamination of the Waikato River.<sup>338</sup>

## 5 Geothermal Features and Tourism

Regardless of reinjection, extracting energy from geothermal water will have an adverse effect on the temperature of geothermal features and tourism. The Waitangi Tribunal reports that many taonga geothermal features “have been irreparably destroyed or degraded” with a loss of cultural and spiritual association.<sup>339</sup> Many geothermal features have dried up or are no longer active.<sup>340</sup> In Wairakei, “the geothermal field is now a geothermal field without geysers.”<sup>341</sup> Modern geothermal power plants such as the Ngawha power plant in Northland are, however, designed to ensure that there are not “any measurable effects on” and “no significant changes” to geothermal features.<sup>342</sup> This can be achieved by setback zones and maintenance of geothermal reservoir pressure.<sup>343</sup> In this context, Judge Sheppard in *Contact Energy Ltd v Waikato Regional Council* describes the flow on effects to tourism appeal as a derivative adverse environmental effect and not as an adverse environmental effect in

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<sup>332</sup> Waitangi Tribunal *Central North Island*, above n 214 at 1616.

<sup>333</sup> *Geotherm Group Ltd v Waikato Regional Council* EnvC Auckland A 47/2006, 13 April 2006 at [237].

<sup>334</sup> *Rotokawa Joint Venture Ltd v Waikato Regional Council* EnvC Auckland A 41/2007, 18 May 2007 at [52].

<sup>335</sup> *Geotherm Group Ltd v Waikato Regional Council* EnvC Auckland A 47/2006, 13 April 2006 at [231].

<sup>336</sup> At [226].

<sup>337</sup> At [238]–[239].

<sup>338</sup> *Rotokawa Joint Venture Ltd v Waikato Regional Council* EnvC Auckland A 41/2007, 18 May 2007 at [52]; Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010.

<sup>339</sup> Waitangi Tribunal *Central North Island*, above n 214 at 1601.

<sup>340</sup> At 1617.

<sup>341</sup> At 1614.

<sup>342</sup> *Ngawha Geothermal Resource Company Ltd v Northland Regional Council* EnvC Auckland A 117/2006, 30 August 2006 at [27].

<sup>343</sup> At [27].

itself.<sup>344</sup> With respect, the meaning of “effect” and “environment” are not so confined. The word “environment” includes the need to look to the economic environment and “effect” includes effects of low probability but high potential impact.<sup>345</sup> Such a construction fits with the requirement to consider sustainable management of economic wellbeing.<sup>346</sup>

## 6 *Air Discharges and Landscape*

Two related adverse environmental effects include air discharges and landscape effects. In relation to the landscape, geothermal power plants inevitably involve a physical power station, well pads, switchyard, cooling towers, separator stations and extensive pipelines which provide an industrial visual effect.<sup>347</sup> Such intrusions can be mitigated with earth bunds, extensive group plantings, locating the site of the power station away from populated areas, and adopting regressive colours matched to the surroundings.<sup>348</sup> Plumes from the cooling towers can, of course, have a visual intrusion on outstanding natural features such as hills and mountains of significance which may need mitigation.<sup>349</sup> Those plumes or air discharges involve three main gases of concern: carbon dioxide, mercury and hydrogen sulphide. Discharges of carbon dioxide are generally insignificant.<sup>350</sup> Mercury discharges are consistent with local background concentrations.<sup>351</sup> Hydrogen sulphide, by contrast, has a “rotten egg” odour.<sup>352</sup> Although unlikely to cause health effects,<sup>353</sup> odour will be noticeable in the immediate vicinity.<sup>354</sup> Ongoing ambient air monitoring is typically necessary.<sup>355</sup>

## 7 *Maori*

Remedying metaphysical environmental effects presents perhaps the greatest challenge. With extensive mythology and legends as to the geothermal resource with taniwhas (spirits) detailed in Waitangi Tribunal reports, Maori association with geothermal resources is ubiquitous and if excluded from consultation, Maori will systematically object. One legend sees geothermal waters as the womb of Mother Earth as the source of human life itself.<sup>356</sup> In *Ngawha*, cultural evidence recorded that the relevant taniwha (Takauere) lives in

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<sup>344</sup> *Contact Energy Ltd v Waikato Regional Council* EnvC Auckland A 4/2000, 24 January 2000 at [263].

<sup>345</sup> RMA 1991, ss 2-3.

<sup>346</sup> RMA 1991, s 5.

<sup>347</sup> *Final Report and Decision of the Board of Inquiry into the Tauhara II Geothermal Development Project* (10 December 2010) at [264].

<sup>348</sup> At [267].

<sup>349</sup> At [265].

<sup>350</sup> *Final Report and Decision of the Board of Inquiry Te Mihi Geothermal Power Station Proposal* (3 September 2008) at [175].

<sup>351</sup> At [175].

<sup>352</sup> At [171].

<sup>353</sup> *Final Report and Decision of the Board of Inquiry into the Tauhara II Geothermal Development Project* (10 December 2010) at [296].

<sup>354</sup> At [294]-[295].

<sup>355</sup> At [301].

<sup>356</sup> Waitangi Tribunal *Ngawha*, above n 244, at 16.



an underground lake but scientific evidence could not reveal its presence.<sup>357</sup> Therefore, the Environment Court found that it did not have jurisdiction to rule on such matters as the RMA 1991 governed proceedings.<sup>358</sup> While Round agrees,<sup>359</sup> the RMA 1991 would seem to require accommodation of beliefs in sustainable management. It is arguable that the question is of balancing beliefs with development rather than declaring such beliefs as being non-justiciable. Development itself is incorporated into Maori customary practices due to the need to regulate the temperature of geothermal resources for different purposes.<sup>360</sup>

## *E Conclusion*

New Zealand's active geothermal fields enable renewable electricity generation and reduce greenhouse gas emissions. The development of such resources like the Wairakei geothermal power station has been met with calls that there is Maori customary ownership over geothermal resources. These rights over ownership merge into disputes over land ownership which is revealed in the Alistair McLachlan litigation. This can result in the unsustainable exclusion of others from the use of geothermal resources. Assessments of environmental effects expose that use of geothermal resources can cause subsidence and hydrothermal eruptions where there is a lack of or increase in reinjection, create contaminants including odour, crisscross the landscape with pipes, harm tourism, and interfere with Maori metaphysical wellbeing. The development of geothermal resources is continuing despite restrictions which appear to burden development with delay due to continuing conflicts.

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<sup>357</sup> *Ngawha Geothermal Resource Company Ltd v Northland Regional Council* EnvC Auckland A 117/2006, 30 August 2006 at [60]-[62].

<sup>358</sup> At [68].

<sup>359</sup> David Round "Here be Dragons" (2005) 11 Otago L Rev 31 at 51.

<sup>360</sup> Waitangi Tribunal *Central North Island*, above n 214 at 1528.

## *V Wind Energy*

### *A Introduction*

Harnessing energy from the wind has grown exponentially in recent decades in an effort to curb greenhouse gas emissions. New Zealand's winds are amongst the world's best. Although wind is intermittent and unpredictable, it is now commercially viable. Adverse environmental effects, however, lie with landscape, visual effects, cumulative impacts and noise. Linked are adverse environmental effects on avifauna, ecology, traffic, fire risk, rural activities, recreation, tourism, and Maori values. Such concerns, as will be seen, are not completely without substance. The Environment Court and Boards of Inquiry have, nonetheless, reasoned that given wind energy's environmentally benign nature, wind energy will often but not always meet the RMA 1991's purpose of sustainable management. Where wind energy does not, redesign or truncation may be available. With such support, New Zealand has over 600 MW of commercial large-scale wind energy operating or under construction and nearly 3500 MW consented or proposed but not yet constructed.<sup>361</sup>

### *B History of Wind Farms in New Zealand*

New Zealand sits in a major atmospheric circulatory zone which results in prevailing westerlies known colloquially as the Roaring Forties which is a reference to New Zealand's latitude.<sup>362</sup> New Zealand, therefore, has an "excellent"<sup>363</sup> and "high quality wind"<sup>364</sup> which compares favourably internationally.<sup>365</sup> Utilisation of the wind resource has traditionally proved financially prohibitive but with an increasing price of electricity and the cost of wind turbines declining, wind farms have proliferated in New Zealand.

New Zealand's first modern wind turbine was established at Brooklyn in Wellington in 1993.<sup>366</sup> In 1995, a plan for 47 turbines on Baring Head near Wellington was declined.<sup>367</sup> New Zealand's first wind farm called Hau Nui<sup>368</sup> was opened in 1996 with seven turbines to be followed by a further eight turbines in 2004.<sup>369</sup> Larger wind farms have been established in the Manawatu near Palmerston North due to the wind funnelling effect of the Tararua and

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<sup>361</sup> New Zealand Wind Energy Association "Wind Farms Operating and Under Construction" and "Proposed Wind Farms" (2012) New Zealand Wind Energy Association <[www.windenergy.org.nz](http://www.windenergy.org.nz)>.

<sup>362</sup> Parliamentary Commissioner for the Environment *Wind Power, People, and Place* (Wellington, 2006) at 16.

<sup>363</sup> At 16.

<sup>364</sup> Helle Tegner Anker, Birgitte Egelund Olsen and Anita Ronne (ed) *Legal Systems and Wind Energy: A Comparative Perspective* (DJOF Publishing, Copenhagen, 2008) at 284.

<sup>365</sup> PCE *Wind*, above n 362, at 21.

<sup>366</sup> At 22.

<sup>367</sup> At 96-97.

<sup>368</sup> For convenience and due to space constraints all windfarms herein described are given names which either refers to the location or the commonly cited name for the project. For instance, *Meridian Energy Limited v Wellington City Council* EnvC Wellington W 31/2007, 14 May 2007 is described as Project West Wind whereas *Meridian Energy Limited v Wellington City Council* [2011] NZEnvC 232 is labelled Project Mill Creek.

<sup>369</sup> PCE *Wind*, above n 362, at 97.

Ruahine Ranges.<sup>370</sup> The Tararua wind farm development was completed in three stages in 1999, 2004, and 2007 with 48, 55, and 31 turbines respectively.<sup>371</sup> This is joined by Te Apiti with 55 turbines built in 2004.<sup>372</sup> Nearby Te Rere Hau, also built in stages, now has 97 turbines.<sup>373</sup> Many smaller turbines have also been constructed around New Zealand consistent with the PCE's preference for community based energy.<sup>374</sup> Nevertheless, several large commercial wind farms have been built. These include Meridian's White Hill (Southland), West Wind (Wellington), Te Uku (Waikato) and TrustPower's Mahinerangi (Clutha).<sup>375</sup>

## C Ownership of Wind

### 1 Consent Duration

At common law, air like water is incapable of ownership and subject to res communes. What is left is land ownership over which the air flows. It is strange therefore that resource consents for the water<sup>376</sup> for hydro or geothermal power stations, coastal permits<sup>377</sup> for marine energy activities and discharges of greenhouse gases<sup>378</sup> from fossil fuel fired power plants, all have maximum resource consent terms of 35 years. Despite this, wind generated electricity falls to be considered as a land use activity of unlimited duration.<sup>379</sup> While almost all consented wind farms have perpetuated this anomaly, the Board of Inquiry into *Hauauru ma Raki* (168 turbines, 150 metres in total height)<sup>380</sup> granted 50 year resource consents. It found 50 years was "the maximum period that the turbines might be in service" because after that turbines would require replacement. When reliance is placed on the reversible effects of wind turbines,<sup>381</sup> decommissioning requirements become essential so the Board held there should be removal of a turbine if the turbine ceases to operate for two years.<sup>382</sup> This consent term argument has the potential to constructively bring wind rights in line with other forms of electricity generation.

### 2 Conflicts over Resource

Although wind is renewable, logistical limits to wind turbine development are being encountered. In *Unison Networks Ltd v Hawkes Bay Wind Farm Ltd*, Unison and Hawkes Bay Wind Farm (HBWF) both appealed to the High Court against the decision of the

<sup>370</sup> At 16.

<sup>371</sup> New Zealand Wind Energy Association "Wind Farms Operating", above n 361.

<sup>372</sup> New Zealand Wind Energy Association "Wind Farms Operating", above n 361.

<sup>373</sup> New Zealand Wind Energy Association "Wind Farms Operating", above n 361.

<sup>374</sup> PCE *Wind*, above n 362, at 113.

<sup>375</sup> New Zealand Wind Energy Association "Wind Farms Operating", above n 361.

<sup>376</sup> RMA 1991, s 123(d).

<sup>377</sup> RMA 1991, s 123 (c).

<sup>378</sup> RMA 1991, s 123(d).

<sup>379</sup> RMA 1991, s 123(1).

<sup>380</sup> *Final Report and Decision of the Board of Inquiry into the Hauauru ma Raki Wind Farm and Infrastructure Connection to Grid* (13 May 2011) at [132]-[136].

<sup>381</sup> At [1143].

<sup>382</sup> At [1169].

Environment Court confirming grants of resource consents to both parties. Unison (15 turbines, 90 metres total height)<sup>383</sup> and HBWF (75 turbines, 125 metres total height)<sup>384</sup> are competitors and the two applications could not co-exist as “the wind produces a wake of disturbed air downwind of it sufficiently turbulent not just to impair efficiency but to damage another turbine attempting to operate within that distributed airflow.”<sup>385</sup> The Unison proposal was the first-stage of a two-stage project which given its small size meant the inference was irresistible that the application “was made to secure priority.”<sup>386</sup> Unison’s resource consents were lodged and notified days before HBWF’s more complex application was lodged and notified.<sup>387</sup> HBWF was successful in consolidating the proceedings into one hearing because it “would be a waste of resources... to have to deal with... common issues twice.”<sup>388</sup> At the subsequent hearing both resource consents were confirmed with the HBWF turbines to “avoid wake turbulence effects on the Unison turbines” because Unison had priority.<sup>389</sup> The High Court refused to alter priority and also refused to rephrase separation conditions which constrained HBWF’s turbines but rather referred to specific turbines.<sup>390</sup>

## *D Assessment of Environmental Effects of Wind Energy*

### *1 Economics*

Wind energy is expensive because of its intermittent and unpredictable nature. Wind speed and direction can vary within minutes. These fluctuations need to be accommodated. In these circumstances, hydroelectric generation can be utilised concurrently with its storage capacity to provide electricity when the wind is in a lull. Alternatively, wind is usually available when the hydroelectric lakes are low due to rainfall. In *Project Hayes* Judge Jackson in the Environment Court rejected such an argument along with the proposal for 176 turbines at 160 metres in total height on the Lammermoor Range in Central Otago.<sup>391</sup> His Honour stated that such complementary was one-sided with only “hydro generation assisting wind generation.”<sup>392</sup> It was held “windpower does not solve the problems posed by a [dry year] shortage of energy at peak times.”<sup>393</sup> Storage capacity was true of any generation as

<sup>383</sup> *Unison Networks Limited v Hawke’s Bay Wind Farm Limited* HC Wellington CIV 2006-441-0810, 15 May 2007 at [6]-[7].

<sup>384</sup> *Unison Networks Limited v Hastings District Council* [2010] NZEnvC 376 at 3.

<sup>385</sup> *Unison Networks Limited v Hastings District Council* EnvC Wellington W 58/2006, 17 July 2006 at [12].

<sup>386</sup> *Unison Networks Limited v Hawke’s Bay Wind Farm Limited* HC Wellington CIV 2006-441-0810, 15 May 2007 at [9].

<sup>387</sup> At [13].

<sup>388</sup> *Hawkes Bay Wind Farm Limited v Hastings District Council* EnvC Wellington W 05/2006, 19 January 2006 at [8].

<sup>389</sup> *Unison Networks Limited v Hastings District Council* EnvC Wellington W 58/2006, 17 July 2006 at [84].

<sup>390</sup> *Unison Networks Limited v Hawke’s Bay Wind Farm Limited* HC Wellington CIV 2006-441-0810, 15 May 2007 at [86]; *Unison Networks Limited v Hastings District Council* EnvC Wellington W 81/2006, 22 September 2006 at [6]-[7] and *Unison Networks Limited v Hastings District Council* [2010] NZEnvC 376 at 3.

<sup>391</sup> *Maniototo Environmental Society Incorporated v Central Otago District Council* EnvC Christchurch C 103/2009, 6 November 2009.

<sup>392</sup> At [557].

<sup>393</sup> At [343].

“thermal fuel [can be] stored.”<sup>394</sup> Wind energy, therefore, needed “back-up generation” which meant that a “thermal plant would be required.”<sup>395</sup> Although Judge Jackson noted that the Court should not be “concerned for the financial wellbeing of corporate entities”<sup>396</sup>, the costs of additional capacity brought about by wind generation was a cost which required consideration as it will be paid by consumers.<sup>397</sup>

On appeal, the High Court returned the decision to the Environment Court for reconsideration. Meridian has since withdrawn its applications altogether.<sup>398</sup> However, the High Court did not discuss this lack of complementarity and the problems raised by these comments await answer. The first point that can be made is that the cost of electricity is protected through electricity pricing to find the lowest overall cost.<sup>399</sup> It follows that the electricity generator will bear the capital and operational costs of the wind farm.<sup>400</sup> Problematically, Judge Jackson’s encouragement of fossil fuels for electricity is inconsistent with legislative encouragement of renewable energy.<sup>401</sup> The Environment Court has previously recognised the “strong synergy between wind generation and hydro”<sup>402</sup> as it had “no doubt that the production of electricity from [a] wind farm has the potential... to result in hydroelectric storage to be utilised.”<sup>403</sup> Another point is that assumptions are made of New Zealand generating up to 20 per cent of its electricity from wind which ignores the current levels of wind generated electricity.<sup>404</sup> Also at a purely evidential level, the New Zealand Institute of Economics has stated that in the Manawatu, wind speeds are negatively correlated with electricity prices but are positively correlated with lake levels in the North Island.<sup>405</sup>

The High Court, on appeal from the Environment Court decision in *Project Hayes*, focused on two principal inter-related errors of law. The Environment Court had engaged with the argument that an assessment of environmental effects should include “a description of any possible alternative locations or methods for undertaking the activity.”<sup>406</sup> Meridian was asked for further information relating to alternative locations for wind farms “elsewhere

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<sup>394</sup> At [557].

<sup>395</sup> At [593].

<sup>396</sup> At [587].

<sup>397</sup> At [604].

<sup>398</sup> New Zealand Wind Energy Association “Proposed Wind Farms”, above 361.

<sup>399</sup> *Final Report and Decision of the Board of Inquiry into the Turitea Wind Farm Proposal* (6 September 2011) at ch 4 [88].

<sup>400</sup> At ch 4 [90]; *Meridian Energy Limited v Wellington City Council* [2011] NZEnvC 232 at [39].

<sup>401</sup> RMA 1991, s 7(j); Energy Efficiency and Conservation Act 2000 [EECA 2000], s 5.

<sup>402</sup> *Meridian Energy Limited v Wellington City Council* EnvC Wellington W 31/2007, 14 May 2007 at [399].

<sup>403</sup> *Upland Landscape Protection Society Incorporated v Clutha District Council* EnvC Christchurch C 85/2008, 25 July 2008 at [220].

<sup>404</sup> *Maniototo Environmental Society Incorporated v Central Otago District Council* EnvC Christchurch C 103/2009, 6 November 2009 at [604].

<sup>405</sup> *Final Report and Decision of the Board of Inquiry into the Turitea Wind Farm Proposal* (6 September 2011), at ch 4 [58]; Johannah Branson *Exploring Wind-Hydro Correlation* (New Zealand Institute of Economics, Wellington, 2008).

<sup>406</sup> RMA 1991, sch 4, cl 1(b).

in New Zealand.”<sup>407</sup> Even so, Judge Jackson found that alternative locations should have been further critiqued.<sup>408</sup> The High Court emphasised that what was merely required was a description of alternative locations and that applicants were not required to “describe alternative sites beyond the relevant district.”<sup>409</sup> The second error of law related to s 7(b) of the RMA 1991 which calls for consideration of the efficient use and development of natural and physical resources. Judge Jackson put a judicial gloss on the word efficient to require economic efficiency as a cost-benefit analysis to quantify “the value of the landscape.”<sup>410</sup> The High Court found that the approach aimed at increasing objectivity was legally erroneous because an ecosystem simply “may not be capable to expression in dollar terms.”<sup>411</sup> It held “[a] degree, even a relatively high degree, of subjectivity is virtually inevitable.”<sup>412</sup>

## 2 Landscape

The reason that the Environment Court overemphasised objectivity is because crucial to wind farm decisions is landscape. In *Project Hayes*, Judge Jackson defined the landscape as “four-dimensional in space and time within the given environment” including memorability, perceptions, values, experiences, time, association and views.<sup>413</sup> It is unsurprising that later attempts to quantify the landscape value in monetary terms proved insurmountable given the earlier ethereal definition of landscape. This broader definition can be rationalised to be the “natural and physical attributes of land together with air and water which change over time and which is made known by people’s evolving perceptions and associations.”<sup>414</sup> This definition brings together the amended *Pigeon Bay* factors.<sup>415</sup> It represents “our sense of, or attachment to, place.”<sup>416</sup> In *Project Hayes*, the Environment Court described the Lammermoor Range as “moorland”<sup>417</sup> with a “vast... treeless plateau covered in either soft-textured golden-brown tussock or snow”<sup>418</sup> among a soft and undulating landform.<sup>419</sup> Evidence of artists and writers who had been enchanted by the

<sup>407</sup> *Meridian Energy Limited v Central Otago District Council* HC Dunedin CIV 2009-412-000980, 16 August 2010 at [58].

<sup>408</sup> *Maniototo Environmental Society Incorporated v Central Otago District Council* EnvC Christchurch C 103/2009, 6 November 2009 at [702]-[705].

<sup>409</sup> *Meridian Energy Limited v Central Otago District Council* HC Dunedin CIV 2009-412-000980, 16 August 2010 at [68] and [93].

<sup>410</sup> *Maniototo Environmental Society Incorporated v Central Otago District Council* EnvC Christchurch C 103/2009, 6 November 2009 at [697].

<sup>411</sup> *Meridian Energy Limited v Central Otago District Council* HC Dunedin CIV 2009-412-000980, 16 August 2010 at [107].

<sup>412</sup> At [110].

<sup>413</sup> *Maniototo Environmental Society Incorporated v Central Otago District Council* EnvC Christchurch C 103/2009, 6 November 2009 at [202].

<sup>414</sup> *MainPower NZ Limited v Hurunui District Council* [2011] NZEnvC 384 at [300].

<sup>415</sup> *Wakatipu Environmental Society Incorporated v Queenstown Lakes District Council* [2000] NZRMA 59 (EnvC); See also: *Pigeon Bay Aquaculture Ltd v Canterbury Regional Council* [1999] NZRMA 209 (EnvC).

<sup>416</sup> *MainPower NZ Limited v Hurunui District Council* [2011] NZEnvC 384 at [302].

<sup>417</sup> *Maniototo Environmental Society Incorporated v Central Otago District Council* EnvC Christchurch C 103/2009, 6 November 2009 at [283].

<sup>418</sup> At [288].

<sup>419</sup> At [305].

Lammermoor Range was led.<sup>420</sup> Tall vertical structures were found to visually compromise, and were unable to be absorbed into, the open horizontal landscape.<sup>421</sup> The wind farm would create its own.<sup>422</sup>

Assessments of landscape have proven controversial with wind farm proposals.<sup>423</sup> Wind is found in open, elevated and coastal environments. On the one hand, turbines in such environment can be “majestic and graceful”<sup>424</sup> whilst having “elegant, kinetic qualities [that together] are often both spectacular and dynamic.”<sup>425</sup> On the other, wind farms exceed the human scale, chopping up and disturbing a still panorama with commotion and inflict “an overpowering, intrusive, and unacceptable presence.”<sup>426</sup> This industrialisation of the rural landscape can create a “thicket”<sup>427</sup> as a white “picket fence”<sup>428</sup> with “serried ranks of tiered rows.”<sup>429</sup> Visual incoherence can reign with the “massing or congestion of turbines”<sup>430</sup> in a “complex mass of structures... overlapping... moving at different speeds.”<sup>431</sup> Where turbines are overwhelmingly dominant and have a bearing down effect on the observer, visual amenity is imperilled.<sup>432</sup> In the *Hauauru ma Raki* the potential effect of turbines on the Waikato rural landscape and coastline was described by witnesses as “ugly”,<sup>433</sup> “visually offensive”,<sup>434</sup> “abhorrent”<sup>435</sup> and “unattractive.”<sup>436</sup> Ultimately, however, the Board of Inquiry found that there were significant benefits to the project including its supply of renewable energy to

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<sup>420</sup> At [308].

<sup>421</sup> At [472].

<sup>422</sup> At [757].

<sup>423</sup> Fraser Clark “Comments in Response to Property Rights, the Public Interest and Global Considerations: The Case of Wind Energy Development” (2007) 7 BRMB 91; Richard Fisher “Wind Energy in New Zealand: Regulatory and Policy Lessons to Date” (2005) 9 NZJEL 307; David Grinlinton “David Grinlinton Replies” (2007) 7 BRMB 80; David Grinlinton “David Grinlinton Replies” (2007) 7 BRMB 92; David Grinlinton “Is Wind Power the Answer to New Zealand’s Energy Needs” (2005) 6 BRMB 71; David Grinlinton “Property Rights, the “Public Interest” and Global Considerations: The Case of Wind Energy Development” (2007) 7 BRMB 62; David Grinlinton “Tilting at Windmills?” (2007) 7 BRMB 75; Nicky McIndoe “Wind Energy Development and Landscape Considerations – A Response” (2007) 7 BRMB 76; Imke Sagemuller “Legislative and Policy Regime Governing the Generation of Wind Energy in New Zealand” (2006) 24 JERL 165; Janet Stephensen and Seth Gorrie “Just Part of Who You Are: The Hidden Significance of Landscape in the Windfarm Debate” in Jacinta Ruru, Janet Stephenson, and Mick Abbott *Making our Place: Exploring Land-Use Tensions in Aotearoa New Zealand* (Otago University Press, Dunedin, 2011) 185.

<sup>424</sup> PCE *Wind*, above n 362, at 55.

<sup>425</sup> *Maniototo Environmental Society Incorporated v Central Otago District Council* EnvC Christchurch C 103/2009, 6 November 2009 at [471].

<sup>426</sup> PCE *Wind*, above n 362, at 55.

<sup>427</sup> *Final Report and Decision of the Board of Inquiry into the Turitea Wind Farm Proposal* (6 September 2011) at ch 13 [125].

<sup>428</sup> At ch 13 [73].

<sup>429</sup> At ch 13 [124].

<sup>430</sup> At ch 13 [157].

<sup>431</sup> At ch 13 [137].

<sup>432</sup> At ch 13 [345].

<sup>433</sup> *Final Report and Decision of the Board of Inquiry into the Hauauru ma Raki Wind Farm and Infrastructure Connection to Grid* (13 May 2011) at [700].

<sup>434</sup> At [700].

<sup>435</sup> At [703].

<sup>436</sup> At [703].

Auckland.<sup>437</sup> In *Project Central Wind*, (52 turbines, 135 metres total height)<sup>438</sup> the Tongariro National Park was of concern because of its status as a UNESCO World Heritage Site with Mt Ruapehu, Tongariro and Ngauruhoe protected.<sup>439</sup> The Environment Court found that the accompanying wind farm would not “diminish the outstanding natural characteristics of the Volcanic Plateau in any way.”<sup>440</sup> In terms of Mt Ruapehu, its “sheer scale” guarantees that it is “the dominating feature in the landscape.”<sup>441</sup>

### 3 Cumulative Effects

Related to landscape and visual amenity are the cumulative effects of wind turbines. In the Manawatu, cumulative effects of multiple wind farms “are becoming a concern.”<sup>442</sup> With saturation,<sup>443</sup> “enough is enough [and] the balance of public opinion is clearly at a tipping point.”<sup>444</sup> *Turitea* (60 turbines, 125 metres total height)<sup>445</sup> had a total of 702 submissions before the Board of Inquiry due to filling the only remaining gap on the Ranges.<sup>446</sup> The problem arises from the spread of the wind farms along the horizon and density but also relates to the differences in design of wind farms.<sup>447</sup> For instance, in the Manawatu there are different turbine heights, different tower design (lattice and tubular), different colours as well as different blades (two or three).<sup>448</sup> The larger turbines are spaced at greater distances turning more slowly, with the smaller turbines having frenetic activity.<sup>449</sup> If built the consented *Turitea* wind farm will boost turbines in the Manawatu to 346 over about 28 kilometres.<sup>450</sup> The ability of landscape views to digest turbines simultaneously (at the same time) or sequentially (one after another) was described by the Board as adverse.<sup>451</sup> Nevertheless, in some circumstances accumulation was addressed by the different quadrants that the wind farms occupy as well as views being for a brief period when travelling.<sup>452</sup> It should be noted that in 2009,<sup>453</sup> resource consents were surrendered for *Motorimu* (80 turbines, 81 metres total height) which proved economically unviable after the Environment

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<sup>437</sup> At [1202].

<sup>438</sup> *Rangitikei Guardians Society Inc v Manawatu-Wanganui Regional Council* [2010] NZEnvC 14 at [13].

<sup>439</sup> At [38] and [240].

<sup>440</sup> At [243].

<sup>441</sup> At [201].

<sup>442</sup> *PCE Wind*, above n 362, at 105.

<sup>443</sup> *Motorimu Wind Farm Ltd v Palmerston North City Council* EnvC Wellington W 67/2008, 26 September 2008 at [182].

<sup>444</sup> *Final Report and Decision of the Board of Inquiry into the Turitea Wind Farm Proposal* (6 September 2011) at ch 11 [12].

<sup>445</sup> At ch 13 [78] and ch 19 [44].

<sup>446</sup> At ch 13 [7].

<sup>447</sup> *PCE Wind*, above n 362, at 89.

<sup>448</sup> *Final Report and Decision of the Board of Inquiry into the Turitea Wind Farm Proposal* (6 September 2011) at ch 12 [5].

<sup>449</sup> At ch 13 [73].

<sup>450</sup> At ch 12 [5] and ch 19 [44].

<sup>451</sup> At ch 13 [257].

<sup>452</sup> At ch 13 [254]-[256].

<sup>453</sup> New Zealand Wind Energy Association “Wind Farms Operating”, above 361.



Court truncated the broader proposal along the foothills of the Tararua Ranges in the Manawatu.<sup>454</sup>

#### 4 *Indigenous Flora and Fauna*

The Minister for the Environment called in *Turitea* not least because the wind farm will be sited on the Turitea Reserve owned by the Palmerston North City Council which is classified as a “local purpose reserve” under the Reserves Act 1977 in order to protect the city’s water supply along with indigenous flora and fauna.<sup>455</sup> In 2006, the Council changed the purpose of the Reserve to renewable electricity generation. Friends of the Turitea Reserve Society alleged that the decision was ultra vires, made with an improper purpose and in breach of natural justice.<sup>456</sup> Baragwanath J discussed the electricity system with the analogy of a swimming pool. Hoses would pour water into the swimming pool while holes would drain the swimming pool. The closer the hose is to a hole, the greater the share of the outflow although it was never certain “how much... water from a particular hole flows out of a particular hole.”<sup>457</sup> This could be thought of in the same way as national (the swimming pool), local (one particular hose) and the consumer (one particular hole) in terms of electricity system. The argument was that the Council was pursuing a national (rather than local) and private (rather than public) purpose. Baragwanath J found that electricity could be a legitimate community purpose<sup>458</sup> and that the revenue generated would be returned to improving the reserves under the control of the Council.<sup>459</sup> The Council had also satisfied the requirements of natural justice including objectivity, transparency and consultation.<sup>460</sup>

#### 5 *Noise*

Noise from wind turbines is an adverse environmental effect. Some have described the noise as a jet plane that never takes off or a train that never leaves its station.<sup>461</sup> Others refer to the noise as innocuous, similar to the hum of a refrigerator. Noise was a critical issue in *Project West Wind* (62 turbines, 111 metres total height)<sup>462</sup> on the south west coast of Wellington.<sup>463</sup> Noise was also at issue in the adjacent *Project Mill Creek* (26 turbines, 111 metres in total height).<sup>464</sup> Noise from wind turbines is both mechanical and aerodynamic.

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<sup>454</sup> *Motorimu Wind Farm Ltd v Palmerston North City Council* EnvC Wellington W 67/2008, 26 September 2008 at [5] and [363]-[367].

<sup>455</sup> *Friends of Turitea Reserve Society Incorporated v Palmerston North City Council* HC Palmerston North CIV 2006-454-878, 25 July 2007 at [3].

<sup>456</sup> At [7].

<sup>457</sup> At [45].

<sup>458</sup> At [23].

<sup>459</sup> At [20].

<sup>460</sup> At [103]-[104] and [155].

<sup>461</sup> *Genesis Power Limited v Franklin District Council* [2005] NZRMA 541 (EnvC) at [116].

<sup>462</sup> *Meridian Energy Limited v Wellington City Council* EnvC Wellington W 31/2007, 14 May 2007 at [524], [535] and [584].

<sup>463</sup> At [1].

<sup>464</sup> *Meridian Energy Limited v Wellington City Council* [2011] NZEnvC 232 at [3] and [395].

Mechanical noise is no longer considered a problem.<sup>465</sup> Aerodynamic noise will arise from the design of the tower and blades as well as the speed of the blades. Environmental factors will also affect the noise level.<sup>466</sup> In relation to noise, special audible characteristics (SACs) which include tonality, impulsiveness, and amplitude modulation may, in addition, be a problem.<sup>467</sup> SACs refer to the character rather than level of noise.<sup>468</sup> At a general level, New Zealand Standard 6808: 2010 “Assessment and Measurement of Sound from Wind Turbine Generators” applies to noise from wind farms. This stipulates that the recommended noise limit is the background sound level ( $L_{A90}$  (10 min)) plus 5 dB (decibels) or 40 dB  $L_{A90}$  (10 min) whichever is greater.<sup>469</sup> Where special audible characteristics are present, a 6 dB upper limit penalty is imposed.<sup>470</sup> There is, furthermore, provision for high amenity areas.<sup>471</sup>

Conditions of resource consents for wind farms usually require a Noise Management Plan. Conditions for *Project West Wind* went further than the applicable New Zealand Standard by requiring that when background noise is low less than 25 dB  $L_{A95}$  (10 min) then the wind farm is limited to 35 dB  $L_{A95}$  (10 min).<sup>472</sup> This means that while “strong guidance” is taken from the applicable standard, it is possible “to apply more stringent noise conditions.”<sup>473</sup> Detailed provisions also related to SACs.<sup>474</sup> The Environment Court found that “[t]he monitoring, measurement and reporting of the sound conditions... is a demanding and technical undertaking. It behoves Meridian and the Council to be diligent[,] open, transparent and helpful.”<sup>475</sup> It may well be that turbines neighbouring dwellings might be temporarily stopped if there is noncompliance.<sup>476</sup> When installed, the *Project West Wind* turbines had SACs which took time for remediation through software changes and the installation of dynamic dampers.<sup>477</sup> In *Project Mill Creek* although the Environment Court took account of these concerns, it found in favour of a consistent wind speed threshold for noise across the whole wind farm of 6 m/s to attenuate noise levels.<sup>478</sup> Related to noise is health effects such as sleep deprivation, migraines, epilepsy, anxiety and psychiatric phobias.<sup>479</sup> It includes such medical conditions as tinnitus and vibro-acoustic disease.<sup>480</sup> However even in the situation of

<sup>465</sup> Anker, above 364, at 207.

<sup>466</sup> At 207.

<sup>467</sup> Standards New Zealand NZS 6808: 2010 *Acoustics – Wind Farm Noise* (Wellington, 2010) at cl 5.4.2.

<sup>468</sup> *MainPower NZ Limited v Hurunui District Council* [2011] NZEnvC 384 at [436].

<sup>469</sup> Standards New Zealand NZS 6808: 2010 *Acoustics – Wind Farm Noise* (Wellington, 2010) at cl 5.2.

<sup>470</sup> At cl 5.4.2.

<sup>471</sup> At cl 5.3.3.

<sup>472</sup> *Meridian Energy Limited v Wellington City Council* EnvC Wellington W 31/2007, 14 May 2007 at [60].

<sup>473</sup> *Final Report and Decision of the Board of Inquiry into the Turitea Wind Farm Proposal* (6 September 2011) at ch 15 [122].

<sup>474</sup> *Meridian Energy Limited v Wellington City Council* EnvC Wellington W 31/2007, 14 May 2007 at [53].

<sup>475</sup> At [66].

<sup>476</sup> At [66].

<sup>477</sup> *Meridian Energy Limited v Wellington City Council* [2011] NZEnvC 232 at [110]; *Final Report and Decision of the Board of Inquiry into the Turitea Wind Farm Proposal* (6 September 2011), ch 15 at [56]-[57].

<sup>478</sup> *Meridian Energy Limited v Wellington City Council* [2011] NZEnvC 232 at [102].

<sup>479</sup> At [124] and [130]-[133]; *Final Report and Decision of the Board of Inquiry into the Turitea Wind Farm Proposal* (6 September 2011) at ch 15 [13].

<sup>480</sup> *Meridian Energy Limited v Wellington City Council* [2011] NZEnvC 232 at [133].

pre-existing autism, the Environment Court has found that it is not required to protect hyperacusis (sensitive hearing) and individual management is required.<sup>481</sup>

## 6 *Birds and Bats*

An adverse environmental effect is on fauna and habitat from wind turbine activity. Collision strike to birds and bats arose in *Hauauru ma Raki* because of migratory pathways. This required analysis of the effects on migratory shore birds, resident shore birds, international migratory birds, resident bush birds, farm birds, wetland birds and bats. Migratory shore birds travel from the South Island nests to North Island feeding grounds.<sup>482</sup> International migratory birds are governed by the Bonn<sup>483</sup> and Ramsar<sup>484</sup> Conventions which protect avian migratory species.<sup>485</sup> The bar-tailed godwit (from Alaska) and the red knot (from South Korea) were of particular concern.<sup>486</sup> The Board concluded the resource consent conditions seek to achieve no-net-loss through a Biodiversity Remediation and Enhancement Scheme.<sup>487</sup> The scheme is designed to protect breeding habitat as well as increase predator control as an environmental offset.<sup>488</sup> For international migratory species, an annual sum of \$10,000 is proffered.<sup>489</sup> Bush birds are of less concern because they do not commonly fly at rotor height.<sup>490</sup> In any event, an Ecology Peer Review Panel is to oversee carcass and other monitoring.<sup>491</sup> This review includes the power “to require individual turbines or groups of turbines to cease operation if necessary.”<sup>492</sup> For bats, the long-tailed and short-tailed bats are nationally endangered. It is thought that moths are attracted to aviation lights and heat of the turbines during night which in turn attracts bats.<sup>493</sup> There is also the risk of barotrauma caused by the air pressure effect of blade movement.<sup>494</sup> Thus, a bat mitigation programme is usual with translocation of roosts if necessary.<sup>495</sup>

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<sup>481</sup> *MainPower NZ Limited v Hurunui District Council* [2011] NZEnvC 384 at [442].

<sup>482</sup> *Final Report and Decision of the Board of Inquiry into the Hauauru ma Raki Wind Farm and Infrastructure Connection to Grid* (13 May 2011) at [501].

<sup>483</sup> Convention on the Conservation of Migratory Species of Wild Animals 1651 UNTS 356 (opened for signature 23 June 1979 and entered into force 1 November 1983).

<sup>484</sup> Convention on Wetlands of International Importance 996 UNTS 245 (opened for signature 22 February 1971 and entered into force 21 December 1975).

<sup>485</sup> Anker, above 364, at 173-177.

<sup>486</sup> *Final Report and Decision of the Board of Inquiry into the Hauauru ma Raki Wind Farm and Infrastructure Connection to Grid* (13 May 2011) at [540]-[543].

<sup>487</sup> At [490] and [563].

<sup>488</sup> At [520].

<sup>489</sup> At [545].

<sup>490</sup> At [553].

<sup>491</sup> At [563].

<sup>492</sup> At [564].

<sup>493</sup> At [569].

<sup>494</sup> At [569].

<sup>495</sup> At [571] - [574].

Broader ecological matters will be affected by construction. Wind farms require significant quantities of concrete which in turn requires water abstraction from rivers or aquifers.<sup>496</sup> Sedimentation and siltation of waterways due to construction of roading required for turbine access will also have a negative impact on aquatic life. Tight conditions relating to water abstraction will often be present. For instance Palmerston North's water supply is found in Turitea Reserve which had been closed to preserve water quality of the catchment.<sup>497</sup> Given that turbine roading requires cut and fill areas and that water catchments generally have higher regional rainfall, the potential for landslide was acute.<sup>498</sup> The *Turitea* Board referred to water quality as "a major issue" and Mighty River Power was made to indemnify Palmerston North City Council for any changes in water quality.<sup>499</sup> The Board was satisfied anyhow that contingency measures and water monitoring would provide "adequate safeguards" to protect water quality.<sup>500</sup> Vegetation that would be destroyed during construction would be mitigated by revegetation offsets, weed control, predator control and direct transfer of flora if feasible.<sup>501</sup> Biodiversity offsets are typical to ensure no-net-loss to ecological integrity but the Turitea Board declined several turbines because high ecological values needed protection.<sup>502</sup> Aligned with such concerns are effects on further fauna, and their habitat, such as on invertebrates (insects) and herpetofauna (lizards and frogs) in any wind farm envelope.<sup>503</sup> In *Waitahora* (52 turbines, 150 metres in total height),<sup>504</sup> east of the Manawatu, the limestone karst formations that the wind farm was to be built on gave rise to underground caves, tunnels, and holes due to extensive underground water.<sup>505</sup> It was noted that stalagmites, stalactites, flow stones and associated subterranean fauna are intolerant of change but that there was a low risk of disturbance.<sup>506</sup>

## 8 *Rural Activities*

Wind farms are predominantly located on rural land with associated rural activities. In *Awhitu* (18 turbines, 90 metres in total height),<sup>507</sup> Isola Stables had about 30 race horses on the property at once and the Isola Equestrian Facility is purpose built for horse-riding

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<sup>496</sup> At [590]-[591].

<sup>497</sup> *Final Report and Decision of the Board of Inquiry into the Turitea Wind Farm Proposal* (6 September 2011) at ch 7 [1].

<sup>498</sup> At ch 7 [35].

<sup>499</sup> At ch 7 [49]; See also: Health (Drinking Water) Amendment Act 2007, s 69U.

<sup>500</sup> At ch 7 [71].

<sup>501</sup> At ch 8 [36].

<sup>502</sup> At ch 8 [79].

<sup>503</sup> *Final Report and Decision of the Board of Inquiry into the Hauauru ma Raki Wind Farm and Infrastructure Connection to Grid* (13 May 2011) at [575]-[583].

<sup>504</sup> *Contact Energy Limited v Manawatu-Wanganui Regional Council* [2010] NZEnvC 406 at [2].

<sup>505</sup> At [78].

<sup>506</sup> At [103].

<sup>507</sup> *Genesis Power Limited v Franklin District Council* [2005] NZRMA 541 (EnvC) at [9]-[11].

events.<sup>508</sup> Horses are flighty and could potentially be affected by the visual and noise stimuli. The Court found that there had been an overstating of the risks,<sup>509</sup> that horses needed to be introduced, habituated and acclimatised to the wind turbines,<sup>510</sup> and that refinements in design had “all but eliminate[d] the potential” risks of the wind farm on horses.<sup>511</sup> In *Waitahora*, Kia Ora Stud runs a throughbred horse stud as well as an agistment service.<sup>512</sup> Similar evidence was led as to the real and serious risk to the safety of horses at the property. The Court found that “[l]ife is not risk-free, and the Act does not require the elimination of all risk.”<sup>513</sup> Risk to horses “is not substantiated by experience in comparable situations.”<sup>514</sup> In *Mt Cass* where three alternative proposals as to wind turbine design were consented,<sup>515</sup> the potential loss of agricultural production was cited.<sup>516</sup> This is because “[t]he ability to undertake aerial top-dressing” is often raised as a constraint.<sup>517</sup> Of course, any aviation including fix-wing aircraft and helicopters need to “keep clear of [power] lines” and turbines.<sup>518</sup> Additionally, farmers often emphasise the “working landscape”<sup>519</sup> and that views (and noise) for dwellings is just as important as the “amenity presently enjoyed [in] their workplace” outside.<sup>520</sup> In this context, high levels of construction traffic pose a menace (even if temporary) to rural ways of life.

## 9 Fire Risk

Wind turbines have the potential to catch fire for a multitude of reasons including transformers, wiring, and lightning. Evidence of structural failure is provided by a prototype wind turbine in Canterbury which had its rotor ripped out and its blades severed in 2005 when “the wind suddenly reversed direction and strengthened, from north-westerly to south-westerly, in about 90 seconds.”<sup>521</sup> Consistent with the Forest and Rural Fires Act 1977, a Fire Management Plan is usually desirable.<sup>522</sup> *Mt Cass* held that the “incremental risk of a fire from a wind turbine... should be minimal.”<sup>523</sup> Yet such a plan “will provide acceptable procedures for the management of the risk of fire and suppression of a fire should occur.”<sup>524</sup>

<sup>508</sup> At [132].

<sup>509</sup> At [164].

<sup>510</sup> At [152].

<sup>511</sup> At [165].

<sup>512</sup> *Contact Energy Limited v Manawatu-Wanganui Regional Council* [2010] NZEnvC 406 at [59].

<sup>513</sup> At [71].

<sup>514</sup> At [73].

<sup>515</sup> *MainPower NZ Limited v Hurunui District Council* [2011] NZEnvC 384 at [485].

<sup>516</sup> At [73].

<sup>517</sup> *Final Report and Decision of the Board of Inquiry into the Hauauru ma Raki Wind Farm and Infrastructure Connection to Grid* (13 May 2011) at [974].

<sup>518</sup> At [978]; See also: *Hart v Civil Aviation Authority* HC Timaru AP 9/99, 6 October 1999; Civil Aviation Authority of New Zealand “Civil Aviation Rules” (1 March 2007) <www.caa.govt.nz>, pt 91 and 137.

<sup>519</sup> *MainPower NZ Limited v Hurunui District Council* [2011] NZEnvC 384 at [307].

<sup>520</sup> At [362].

<sup>521</sup> Veronika Meduna “Wind Energy in New Zealand” (2009) Te Ara: The Encyclopedia of New Zealand <www.TeAra.govt.nz>.

<sup>522</sup> *MainPower NZ Limited v Hurunui District Council* [2011] NZEnvC 384 at [108].

<sup>523</sup> At [115].

<sup>524</sup> At [122].

In *Turitea*, Palmerston North City Council is required to have a Fire Management Plan as the rural fire authority.<sup>525</sup> This is complemented with Mighty River Power's Emergency Response Plan incorporating fires.<sup>526</sup> In terms of the Building Code, the structure of a building is to have fire resistance proportionate to any fire hazard and the height of such a building.<sup>527</sup> Consideration is also to be given to the physical conditions likely to affect building stability such as earthquakes.<sup>528</sup>

## 10 Recreation, Tourism and Heritage Protection

Recreation, tourism and heritage protection were key components to the Environment Court's declining of resource consents in *Project Hayes* and arguably Meridian's withdrawal of the project altogether. The Environment Court referenced walkers, hunters, trappers, cross-country skiers, angling, boating, four-wheel driving, mountain biking, and horse riding.<sup>529</sup> In combination with tourism related to the Central Otago Rail Trail<sup>530</sup> activities included photography, botanising, art and filming.<sup>531</sup> The assumption that outdoor recreation could be divorced from its surroundings was explicitly rejected and "people go to an area for the quality of the experience."<sup>532</sup> The gold mining history of the site was examined with the Old Dunstan Road,<sup>533</sup> Styx Jail, and Hotel being held to be "a heritage landscape of interest."<sup>534</sup> By contrast, tourism relating to Waipara wineries in *Mt Cass* was found to be "a destination choice in their own right" and that a correlation did not exist between "uncluttered landscape and fine wines."<sup>535</sup> Rather "a wind farm may increase tourism."<sup>536</sup> However, with the saturation of landscapes with turbines, such a conclusion is obviously questionable. As a side note to recreation, wind turbines have the potential to affect radio and television reception. Cases have consistently held that any interference "must be rectified at full cost" to the wind farm operator.<sup>537</sup>

<sup>525</sup> *Final Report and Decision of the Board of Inquiry into the Turitea Wind Farm Proposal* (6 September 2011) at ch 7 [23].

<sup>526</sup> At ch 7 [24].

<sup>527</sup> Building Regulations 1992, sch 1, C.3.3.

<sup>528</sup> Building Regulations 1992, sch 1, B1.3.3.

<sup>529</sup> *Maniototo Environmental Society Incorporated v Central Otago District Council* EnvC Christchurch C 103/2009, 6 November 2009 at [69].

<sup>530</sup> At [70].

<sup>531</sup> At [81].

<sup>532</sup> At [83].

<sup>533</sup> At [207].

<sup>534</sup> At [69].

<sup>535</sup> At [372]-[373].

<sup>536</sup> At [374].

<sup>537</sup> *Final Report and Decision of the Board of Inquiry into the Hauauru ma Raki Wind Farm and Infrastructure Connection to Grid* (13 May 2011) at [755].

A consistent challenge to wind energy is Maori association with the landscape. This led to the rejection of 37<sup>538</sup> and a reapplication for 34 turbines<sup>539</sup> at 130 to 135 metres in total height<sup>540</sup> in *Te Waka* which was the second stage to Unison Networks Ltd's enterprise described above. The turbines were to be to the south and west of a distinctive feature known as Te Waka with the nearest turbine 400 metres from the feature.<sup>541</sup> Te Waka is a distinctive landform which represents a waka with a hull, sternpost, and wake. The feature is rich in lore, history, and spiritual significance.<sup>542</sup> It includes a rock shelter and moa hunting site of archaeological significance.<sup>543</sup> The Court considered ss 6(e), 7(a), and 8 of the RMA 1991 which relate to Maori concerns. The Court noted the "depth of emotion" and "attachment of the people to this area."<sup>544</sup> The feature was not an outstanding landscape feature in the district plan but was seen as a key landmark in myth, legend and reality.<sup>545</sup> The Court concluded that this was an outstanding landscape and that "it is not open to us to embark on a major redesign of the project."<sup>546</sup> On appeal to the High Court, Potter J upheld the Environment Court's decision that the district plan was not determinative of outstanding natural landscapes and that the Environment Court was entitled to make its own judgment on the evidence.<sup>547</sup> In the reapplication for 34 turbines while the Court recognised that an outstanding natural feature does not preclude development,<sup>548</sup> the proposal would "visually intrude quite markedly" on views and "would not serve to needs" of protecting Maori values under the RMA 1991.<sup>549</sup> The Maori and landscape alliance proved a persuasive basis for declining the application.

## *E Conclusion*

Wind energy is often seen as the poster boy of mitigating greenhouse gas emissions. As New Zealand's winds are world renowned, New Zealand has begun extensive commercial exploitation of its wind resource. Although wind is intermittent and unpredictable, it is now financially viable. Criticisms of wind farms relate to landscape, visual, cumulative and noise

<sup>538</sup> *The Outstanding Landscape Protection Society Inc v Hastings District Council* EnvC Wellington W 24/2007, 13 April 2007.

<sup>539</sup> *Unison Networks Limited v Hastings District Council* EnvC Auckland W 11/2009, 23 February 2009.

<sup>540</sup> *The Outstanding Landscape Protection Society Inc v Hastings District Council* EnvC Wellington W 24/2007, 13 April 2007 at [2]; *Unison Networks Limited v Hastings District Council* EnvC Auckland W 11/2009, 23 February 2009 at [145].

<sup>541</sup> *The Outstanding Landscape Protection Society Inc v Hastings District Council* EnvC Wellington W 24/2007, 13 April 2007 at [5].

<sup>542</sup> At [8].

<sup>543</sup> At [37].

<sup>544</sup> At [81].

<sup>545</sup> At [23].

<sup>546</sup> At [108] and [117].

<sup>547</sup> *Unison Networks Limited v Hastings District Council* HC Wellington CIV-2007-485-896, 11 December 2007 at [81].

<sup>548</sup> *Unison Networks Limited v Hastings District Council* EnvC Auckland W 11/2009, 23 February 2009 at [142].

<sup>549</sup> At [144] and [159].

effects. Other adverse environmental effects include avifauna, ecology, traffic, fire, rural activities, recreation, tourism, and Maori values. Wind energy is being developed because due to its environmentally benign nature, it often (but not always) meets the purpose of sustainable management under the RMA 1991. Where the purpose of sustainable management has not been satisfied, wind farm proposals have been truncated and redesigned but rarely declined. This bodes well for New Zealand's greenhouse gas emissions targets but as New Zealand has followed the commercial rather than community model of wind farms, New Zealand would do well to avoid resistance.<sup>550</sup>

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<sup>550</sup> PCE *Wind*, above n 362, at 112-113.



## *VI Marine Energy*

### *A Introduction*

New Zealand's development of various forms of marine energy to produce renewable electricity and reduce greenhouse gas emissions is still in its infancy. With advancing technology, New Zealand is geographically well placed to be home to such developments. However, the way New Zealand has dealt with the contentious issue of the marine and coastal area acts as a *prima facie* disincentive to marine technology. It is argued that as marine developments in customary marine title areas would be considered to be deemed accommodated infrastructure that such development should not be obstructed. This issue interrelates with concerns about public access including navigation and fishing. Other adverse environmental effects include effects on landscape, coastal processes, fish, marine mammals, and cultural interests which will need to be addressed using an adaptive management framework. The development of marine energy in New Zealand will, no doubt, see further litigation as competing interests seek to protect or harness the power of the oceans.

### *B History of Marine Energy in New Zealand*

Energy from oceans can be converted to electricity in a multitude of ways.<sup>551</sup> There are eight principal marine sources which include energy derived from waves (open ocean swells and breaking waves), tides (tidal rise / fall and currents), heat (change in temperature between deep and shallow water), osmotic processes (change in salt concentrations), marine biomass farming and offshore winds. The latter four are not currently commercially viable in New Zealand. Energy derived from waves in the open ocean include point absorber devices and attenuators, while energy derived from breaking waves includes oscillating water columns and overtopping devices. Energy from tides can be extracted through barrages or turbines. Nevertheless, turbines take different forms with horizontal axis turbines (analogous to a wind turbine working underwater), shrouded turbines (a hydro turbine which accelerates natural flow), open ring turbines (a hydro turbine with a large hole in the middle), and vertical axis turbines (analogous to vertical wind turbines no longer under development).

Although New Zealand has one of the best wave energy resources in the world with only limited opportunities for tidal energy,<sup>552</sup> tidal energy is currently taking the lead due to advances in technology. In July 2006, Crest Energy submitted resource consent applications for a 200 extended array of turbines on the seabed of Kaipara Harbour.<sup>553</sup> In July 2007, Neptune Power submitted resource consents for a single tidal turbine near Karori Rip in the Cook Strait. After reviewing their plans, Neptune Power “unveiled plans to deploy 900 MW

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<sup>551</sup> Power Projects Limited “Development of Marine Energy in New Zealand” (30 June 2008) <[www.eeca.govt.nz](http://www.eeca.govt.nz)>.

<sup>552</sup> Glen Wright and David Leary “Marine Energy” [2011] NZLJ 227 at 227.

<sup>553</sup> Power Projects Limited, above n 551, at 59.

of tidal stream devices of Cape Terawhiti by 2021” which involved consent to install a single prototype.<sup>554</sup> In 2006, Wave Energy Technology developed a point absorber wave prototype off Pegasus Bay near Christchurch.<sup>555</sup> Energy Pacifica is pursuing tidal energy in the Tory Channel with applications for resource consent and plans to install ten turbines up to 1.2 MW each.<sup>556</sup> Chatham Islands Marine Energy Ltd has applied for resource consents for shore-based wave power at Point Durham in the Chatham Islands to supply the islands with nearly half of the electricity for the island.<sup>557</sup> Community Leisure Management Ltd has sought deployment of three turbines to take advantage of the tidal flows of Hobson Bay.<sup>558</sup> In addition, Tangaroa Energy Rakia Amps Ltd seeks to take advantage of the eastern waters of Stewart Island with wave energy.<sup>559</sup> This has all been encouraged by the \$8 million Marine Energy Development Fund administered by the Energy Efficiency and Conservation Authority. As yet, only Crest Energy’s marine energy development in Kaipara Harbour has been consented by the Environment Court with interim and final decisions.<sup>560</sup>

### C Nuclear Power

As a side note, development of an electricity source at Kaipara Harbour and Baring Head to feed Auckland and Wellington respectively are not new. A 1964 report stated in reference to nuclear power that “this means of power generation must be introduced in New Zealand.”<sup>561</sup> With the discovery of the Maui gas field in 1969, nuclear power became delayed.<sup>562</sup> Even so, the New Zealand Atomic Energy Committee identified several sites around Kaipara Harbour for development.<sup>563</sup> In 1976, a Royal Commission of Inquiry into Nuclear Power Generation was established. That year, Campaign for Non-Nuclear Futures presented Parliament with a petition with 333,088 signatures calling for an entirely non-nuclear future including nuclear power.<sup>564</sup> The Commission concluded in 1978 that “[i]f New Zealand wants more electricity... some environmental impacts will have to be paid.”<sup>565</sup> New Zealand must maintain and update “its knowledge of nuclear power generation... so that it is... qualified to avail itself of the nuclear option” but at that time nuclear power was

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<sup>554</sup> At 59.

<sup>555</sup> At 59-60.

<sup>556</sup> Wright and Leary, above 552, at 227.

<sup>557</sup> At 227.

<sup>558</sup> Energy Efficiency and Conservation Authority “Marine Energy Deployment Fund” (2012) <[www.eeca.govt.nz](http://www.eeca.govt.nz)>.

<sup>559</sup> EECA “Marine Energy Deployment Fund”, above n 558.

<sup>560</sup> *Crest Energy Kaipara Limited v Northland Regional Council* EnvC Auckland A 132/2009, 22 December 2009; *Crest Energy Kaipara Limited v Northland Regional Council* [2011] NZEnvC 26.

<sup>561</sup> Rebecca Priestley “Nuclear New Zealand: New Zealand’s Nuclear and Radiation History to 1987” (Phd Thesis, University of Canterbury, 2010) at 239; See also: Andrew McEwan *Nuclear New Zealand? Sorting Fact from Fiction* (Hazard Press Ltd, Christchurch, 2004).

<sup>562</sup> Priestley, above n 561, at 241.

<sup>563</sup> At 242.

<sup>564</sup> At 253.

<sup>565</sup> Thaddeus McCarthy “Royal Commission of Inquiry on Nuclear Power Generation in New Zealand” [1978] VII AJHR H 4 at 41.

uneconomic.<sup>566</sup> Today, nuclear power in New Zealand would face considerable public opposition. As a starting point, Ministerial consent would be needed for the importation of nuclear fuels into New Zealand and hence nuclear power is not considered any further.<sup>567</sup>

#### D *Ownership of the Coastal Marine Area*

Even though sea water is incapable of ownership due to its nature at common law, ownership of land in the coastal marine area is contentious. In *Attorney-General v Ngati Apa*, the Court of Appeal found that Maori aboriginal title to the foreshore and seabed had not been extinguished by the Crown in its acquisition of sovereignty or through statutes.<sup>568</sup> The Foreshore and Seabed Act 2004 (FSA 2004) resulted with s 13 vesting the “full legal and beneficial ownership of the public foreshore and seabed” in the Crown to be “held by the Crown as its absolute property.”<sup>569</sup> This created territorial customary rights and customary rights orders but these proved impossible to obtain due to the thresholds required for acquisition and no rights were granted.<sup>570</sup> The Act was subjected to extensive scrutiny with the Waitangi Tribunal reporting that the Act was in breach of the Treaty of Waitangi.<sup>571</sup> With a change of government and a Ministerial Review Panel, the subsequent Marine and Coastal Area (Tukutai Moana) Act 2011 provides in s 11 that “[n]either the Crown nor any other person owns, or is capable of owning, the common marine and coastal area, as in existence from time to time after the commencement of this Act.”<sup>572</sup> More problematically, in s 18, “any structure that is... fixed to, or under or over, any part of the common marine and coastal area... is to be regarded as personal property and not as land or as an interest in land.”<sup>573</sup> Awkwardly, s 60 stipulates that customary marine title “provides an interest in land” although such an interest is not created for a protected customary right.<sup>574</sup>

To answer this anomaly, it is appropriate to go back to the statutes. The “coastal marine area” is defined in the RMA 1991 as including the foreshore, seabed, coastal water, and the air space above the water. This area is bounded by the mean high water springs and goes out to the 12 mile territorial sea.<sup>575</sup> The “marine and coastal area” under the MCAA 2011 is defined similarly but expressly does not include water in order to avoid the

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<sup>566</sup> At 45.

<sup>567</sup> Atomic Energy Act 1945, s 7; See also: International Energy Agreement Act 1976; New Zealand Nuclear Free Zone, Disarmament, and Arms Control Act 1987; Nuclear-Test-Ban Act 1999; Radiation Protection Act 1965; and Terrorism Suppression Act 2002.

<sup>568</sup> *Attorney-General v Ngati Apa* [2003] 3 NZLR 643 (CA).

<sup>569</sup> Foreshore and Seabed Act 2004, s 13.

<sup>570</sup> Richard Boast and Robert Makgill *Marine and Coastal Area Act – Demystifying the Hype* (New Zealand Law Society, Wellington, 2011) at 15; See generally: Daniel Kalderimis and Marcelo Rodriguez Ferrere “The Marine and Coastal Area” [2011] NZLJ 116; Nin Tomas “Maori Land Law: The Coastal Marine [Area] (Takutai Moana) 2011” [2011] 2 NZ L Rev 381.

<sup>571</sup> Waitangi Tribunal *Report on the Crown’s Foreshore and Seabed Policy* (Wai 1071, 2004) at 127.

<sup>572</sup> Marine and Coastal (Takutai Moana) Act 2011 [MCAA 2011], s11.

<sup>573</sup> MCAA 2011, s 18.

<sup>574</sup> MCAA 2011, s 52.

<sup>575</sup> RMA 1991, s 2.

recognition of Maori customary title to water because as seen previously water at common law is incapable of ownership until capture.<sup>576</sup> The “common marine and coastal area” is defined in the MCAA 2011 as the marine and coastal area other than specified freehold land, any land owned by the Crown such as a conservation area, national park or reserve.<sup>577</sup> Section 12(1)(b) of the RMA 1991 provides that no person may in the coastal marine area “[e]rect, reconstruct, place, alter, extend, remove, or demolish any structure or any part of a structure that is fixed in, on, under, or over any foreshore or seabed.”<sup>578</sup> Structure is defined in the RMA 1991 as anything essentially that “is fixed to land.”<sup>579</sup> The MCAA 2011 prompts that any structure does not become land because there is to be no ownership of the common coastal marine area. It also states that the “marine and coastal area” is not land but includes “subsoil, bedrock, and any other matter.”<sup>580</sup> Clearly, the common marine and coastal area includes land to which structures can be affixed. Such structures are declared personal property despite affixation as real property.<sup>581</sup>

In a customary rights title area, there is the creation of “deemed accommodated activities.”<sup>582</sup> Such an activity includes infrastructure that is owned, operated or carried out, for present purposes, by a network utility operator<sup>583</sup> and / or an electricity generator.<sup>584</sup> Such “deemed accommodated activities” must involve “the construction or operation of any proposed infrastructure that... cannot practicably be constructed or operated in any location other than within a customary marine title area.”<sup>585</sup> It is required to be essential for “national social or economic well-being” or “[regional] social or economic well-being.”<sup>586</sup> Such infrastructure must be agreed in principle by the group that holds customary marine title or is classified by the Minister for Land Information as a deemed accommodated activity subject to all necessary consents being obtained.<sup>587</sup> A comprehensive procedure means that before any applications for resource consents are lodged, the Minister for Land Information is to be provided with detailed information about the proposal.<sup>588</sup> If there is sufficient information to proceed, the Minister will enter into negotiations with the customary marine title group to “identify appropriate compensation.”<sup>589</sup> If the proposed infrastructure becomes a “deemed accommodated activity”, the Minister must publish in the *Gazette* relevant details.<sup>590</sup>

<sup>576</sup> Richard Boast and Robert Makgill *Marine and Coastal Area Act – Demystifying the Hype* (New Zealand Law Society, Wellington, 2011) at 34.

<sup>577</sup> MCAA 2011, s 9.

<sup>578</sup> RMA 1991, s 12(1)(b) .

<sup>579</sup> RMA 1991, s 2.

<sup>580</sup> MCAA 2011, s 9.

<sup>581</sup> *Lockwood Buildings v Trustbank Canterbury* [1995] 1 NZLR 22 (CA) at 28.

<sup>582</sup> MCAA 2011, s 65.

<sup>583</sup> RMA 1991, s 166.

<sup>584</sup> Electricity Act 1992, s 2.

<sup>585</sup> MCAA 2011, s 65(1)(a)(ii).

<sup>586</sup> MCAA 2011, s 65(1)(a)(iii).

<sup>587</sup> MCAA 2011, s 65(1)(a)(iv).

<sup>588</sup> MCAA 2011, sch 2.

<sup>589</sup> MCAA 2011, sch 2, cl 6.

<sup>590</sup> MCAA 2011, sch 2, cl 11.

The creation of interests in land for customary marine title areas but not structures is perplexing. Freehold land, conservation areas, national parks or reserves do have an owner so any structure thereon would become real property. Nevertheless, it is probable that any structure in the customary marine title area does not create an interest in land even though the customary marine title itself creates an interest in land. The definition of customary marine title area is “part of the common marine and coastal area where a customary marine title order applies.”<sup>591</sup> As seen, structures are “personal property” in the common marine and coastal area. While it has been argued that “Crown ownership is a vestige of a feudal past”,<sup>592</sup> it is arguable that the creation of an interest in land for customary marine titles (despite its explicit exception) appears *prima facie* inconsistent with the proposition that there is to be no ownership of the common marine and coastal area. It is doubtful whether the legislature has heeded the warning that structures should be “free from complex legal technicalities.”<sup>593</sup>

## 1 *Conflicts over Resource*

When Crest Energy sought consent to install and operate electricity generating turbines in Kaipara Harbour, Environs Holdings (a subsidiary of Te Uri o Hau Settlement Trust) sought a stay of the proceedings pending the outcome of an application filed under the FSA 2004.<sup>594</sup> This application sought recognition of territorial customary rights over the foreshore and seabed of Kaipara Harbour. The Environment Court declined the stay because Environs Holdings “did not need to rely on” any determination under the FSA 2004 in order to give evidence in the Environment Court as to Maori relationship with the area.<sup>595</sup> It was explained that resource consents do not grant proprietary rights. The process for establishing such rights was conceded as lengthy which would “create an unreasonable and prejudicial delay for Crest Energy.”<sup>596</sup> The Court also averred that Environs Holdings knew that a hearing was to take place before the Environment Court but waited four months before applying for a stay.<sup>597</sup> This was upheld in the High Court as “[i]t is not appropriate to afford status to a group seeking a territorial customary rights order that it does not possess.”<sup>598</sup>

Majurey and Whata submit that “should this situation arise again[,] the outcome may very well be different given the [MCAA 2011].”<sup>599</sup> Respectfully, such reasoning does not withstand scrutiny. Certainly the MCAA 2011 introduced a new regime. However, firstly,

<sup>591</sup> MCAA 2011, s 9.

<sup>592</sup> Richard Boast and Robert Makgill *Marine and Coastal Area Act – Demystifying the Hype* (New Zealand Law Society, Wellington, 2011) at 39.

<sup>593</sup> Taihakurei Edward Durie, Richard Boast and Hana O’Regan *Report of the Ministerial Review Panel: Ministerial Review of the Foreshore and Seabed Act 2004* (vol.1, 2009) at 159.

<sup>594</sup> *Environs Holdings Limited v Northland Regional Council* EnvC Auckland A 34/2009, 23 April 2009.

<sup>595</sup> At [9].

<sup>596</sup> At [11].

<sup>597</sup> At [14].

<sup>598</sup> *Environs Holdings Limited v The Environment Court at Auckland* [2009] NZRMA 340 at [26].

<sup>599</sup> Nolan, above n 49, at 931.

there is nothing in the MCAA 2011 which halts legal proceedings because of customary recognition applications. The closest provision is s 62 of the MCAA 2011 which stipulates that a person who applies for a resource consent must, if an applicant group have applied for recognition of customary marine title, notify the applicant group and seek the views of the applicant group but that is all. Secondly, although s 122(5) of the RMA 1991 creates what appear to be proprietary rights for coastal activities as occupation,<sup>600</sup> resource consents are still not concerned with ownership.<sup>601</sup> Thirdly, logically an applicant group must have applied for customary recognition before a resource consent application is made in order to establish priority. This would be consistent with (although distinguishable from) priority being created on a “first-in-first-served” basis as established in the aquaculture case of *Fleetwing Farms Ltd v Marlborough District Council*.<sup>602</sup> This is different from Environs Holdings because the resource consents were applied for before the customary recognition application. Fourthly, provisions relating to unreasonable delay still exist.<sup>603</sup> Environs Holdings waited four months before applying for a stay after knowing that resource consent applications was going to an Environment Court hearing. For these reasons, if the situation arose again the facts would have to be critically different in order for any sustainable outcome to be different.

Although ownership is contentious, the MCAA 2011 encourages the use of the marine and coastal area for all New Zealanders.<sup>604</sup> This philosophy is in harmony with the RMA 1991.<sup>605</sup> Under the RMA 1991, the New Zealand Coastal Policy Statement 2010 (NZCPS 2010) forms the pinnacle of coastal management in New Zealand.<sup>606</sup> This is complemented with a web of regional policy statements, regional coastal plans, regional plans and district plans. The NZCPS 2010 renders the status of restricted coastal activity obsolete with the mere requirement for a coastal permit by the regional council if required.<sup>607</sup> Importantly for the development of marine energy, the NZCPS 2010 recognises the “potential for renewable marine energy to contribute to meeting the energy needs of future generations.”<sup>608</sup>

## *E Assessment of Environmental Effects of Marine Energy*

### *1 Adaptive Management*

The development of marine energy requires an adaptive management framework due to the sensitivity of the coastal environment. Adaptive management is an experimental

<sup>600</sup> Robert Makgill “Public Property and Private Use Rights: Exclusive Occupation of the Coastal Marine Area of New Zealand” in Klaus Bosselmann and Vernon Tava (ed) *Water Rights and Sustainability* (vol. 3, New Zealand Centre for Environmental Law Monograph Series, Auckland, 2011).

<sup>601</sup> *Marlborough District Council v Valuer-General* [2008] 1 NZLR 690 (HC) at [37].

<sup>602</sup> *Fleetwing Farms Ltd v Marlborough District Council* [1997] 3 NZLR 257 (CA).

<sup>603</sup> RMA 1991, s 21.

<sup>604</sup> MCAA 2011, ss 4 and 11.

<sup>605</sup> RMA 1991, s 122(1).

<sup>606</sup> Nolan, above n 49, at 324.

<sup>607</sup> Department of Conservation, above n 14, at Policy 29.

<sup>608</sup> Department of Conservation, above n 14, at Policy 6(2)(a).

approach to management through learning by doing.<sup>609</sup> This provides for an extensive baseline knowledge from which a proposal is entered into stages and which there is an oscillation between monitoring and evaluation. If, for instance, the precautionary principle was taken to its extreme, “innovative or pioneering projects might never receive consent. That is not the law.”<sup>610</sup> After two years of baseline monitoring, three turbines are to be deployed in *Crest Energy Kaipara Limited v Northland Regional Council (No. 2)* (*Crest Energy No.2*) followed by another 17, 20, 40, and then 120 to bring the total number of turbines to 200.<sup>611</sup> Deployment of a subsequent stage would be subject to the approval of the Northland Regional Council following reviews which included public notification, submissions and hearings in line with s 128 to s 133A of the RMA 1991.<sup>612</sup> This was conceded as a response to the Court’s uncertainties in the evidence previously presented.<sup>613</sup>

## 2 Navigation and Fishing

Marine energy investors need the security that infrastructure is not compromised. In *Crest Energy (No. 1)*, it was noted that navigation exclusion zones will usually be required to be imposed by a harbour master.<sup>614</sup> The harbour master would agree to alternative safe navigation channels. If a navigation exclusion zone is imposed “all vessels other than the consent holder’s maintenance vessels would be prohibited from entering these restricted areas.”<sup>615</sup> The Submarine Cables and Pipelines Protection Act 1996 is also relevant. It can create a designated area to generally prevent all fishing as well as diving activities and anchoring of ships in the area to protect submarine cables.<sup>616</sup> In terms of the adverse environmental effect on safety, appropriate “use of visual and sound signals on [a] servicing barge when low visibility circumstances dictated” will avoid collision with other boats.<sup>617</sup> While Crest did not seek exclusive occupation under the RMA 1991,<sup>618</sup> the Court explained that the coastal permit together with the navigation exclusion zone would restrict use of the area.<sup>619</sup> Although maintenance of public access to and along the coastal marine area was cited, the Court found “public access to this remote and wild area is very limited” already.<sup>620</sup>

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<sup>609</sup> *Golden Bay Marine Farmers v Tasman District Council* EnvC Wellington W 19/03, 27 March 2003 at 78-79.

<sup>610</sup> *Crest Energy Kaipara Limited v Northland Regional Council* [2011] NZEnvC 26 at [21].

<sup>611</sup> At [19.7].

<sup>612</sup> At [19.1].

<sup>613</sup> *Crest Energy Kaipara Limited v Northland Regional Council* EnvC Auckland A 132/2009, 22 December 2009 at [206].

<sup>614</sup> Local Government Act 1974, pt 39A.

<sup>615</sup> *Crest Energy Kaipara Limited v Northland Regional Council* EnvC Auckland A 132/2009, 22 December 2009 at [79].

<sup>616</sup> Submarine Cables and Pipelines Protection Act 1996, s 12.

<sup>617</sup> *Crest Energy Kaipara Limited v Northland Regional Council* EnvC Auckland A 132/2009, 22 December 2009 at [87].

<sup>618</sup> At [77].

<sup>619</sup> At [83].

<sup>620</sup> At [210]; RMA 1991, s 6(d).

### 3 *Sediment and Scouring*

Marine energy devices traditionally involve permanent structures being placed in moving water which can create changes to the hydrodynamic environment through sediment built up or scouring.<sup>621</sup> Scouring is likely to be limited to areas immediately around and underneath marine energy devices. The presence of a permanent structure on the seabed may also create water turbulence. The Court in *Crest Energy (No. 1)* accepted that “the proposed development generally was unlikely to have significant effects on coastal processes.”<sup>622</sup> However, adaptive management was to deal with any uncertainty. This required in *Crest Energy (No. 2)* the addition of ballast to the structure to increase its mass, to anchor the structure to the seabed with receptor piles as well as the placement of rock armouring around the structure to control scouring.<sup>623</sup>

### 4 *Visual Impact*

Although Crest Energy’s proposal is submerged, other marine energy technology may require an above surface visual manifestation as is required for wave energy proposals. The RMA 1991 attempts to preserve the natural character of the coastal environment<sup>624</sup> as well as the protection of outstanding natural features and landscapes.<sup>625</sup> In *Pigeon Bay Aquaculture Ltd v Canterbury Regional Council* with marine farms applications, it was held that while obviously the buoys and structures would detract from the naturalness of the seascape and landscape, the marine farms were part of a broader working landscape which was not pristine.<sup>626</sup> In that case “the potential effects of the marine farms on the values of the coastal environment both on sea and on land [were] minor” and thereby accordingly appropriate.<sup>627</sup> By contrast, in an outstanding natural landscape adding an “unnatural element to the water surface” will usually create a more than minor adverse visual environmental effect.<sup>628</sup>

### 5 *Fish*

The adverse environmental effect of marine energy on fish is uncertain. Evidence was presented that fish would be able to detect and avoid turbines due to highly developed sensory systems.<sup>629</sup> Relevant migratory species included orca, rig, school shark, grey mullet and snapper.<sup>630</sup> As there was high underwater noise due to the entrance to Kaipara Harbour,

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<sup>621</sup> Aotearoa Wave and Tidal Energy Association “Environmental Impacts of Marine Energy Converters” (7 November 2008) <[www.awatea.org.nz](http://www.awatea.org.nz)> at 32.

<sup>622</sup> At [89].

<sup>623</sup> *Crest Energy Kaipara Limited v Northland Regional Council* [2011] NZEnvC 26 at 31.

<sup>624</sup> RMA 1991, s 6(a).

<sup>625</sup> RMA 1991, s 6(b).

<sup>626</sup> *Pigeon Bay Aquaculture Ltd v Canterbury Regional Council* [1999] NZRMA 209 (EnvC) at [61].

<sup>627</sup> At [64].

<sup>628</sup> *Browning v Marlborough District Council* EnvC Wellington W20/97, 10 March 1997 at 7.

<sup>629</sup> *Crest Energy Kaipara Limited v Northland Regional Council* EnvC Auckland A 132/2009, 22 December 2009 at [104].

<sup>630</sup> At [106].



an expert postulated that there “would be no hearing hazard, behavioural issue or communication making from turbine noise for sea life.”<sup>631</sup> The 35 dB increase was contested as significant.<sup>632</sup> Ultimately, the Court found that they had “no reliable evidence to assess [mammal or fish] response to the turbine noise” and affirmed adaptive management.<sup>633</sup> Nonetheless with resource consent conditions which involved underwater cameras, sound recordings, tagging as well as setnet, driftnet, beach seine, otter trawl and beam trawl methods in order to detect fish, staged development allowed for extensive monitoring.<sup>634</sup>

## 6 *Dolphins*

Extensive evidence was led about the effect on Maui’s dolphin. Maui’s dolphin is listed internationally as critically endangered with only about 100 still in existence.<sup>635</sup> The Department of Conservation has put in place a Marine Mammal Sanctuary to protect Maui’s dolphin which includes Kaipara Harbour.<sup>636</sup> Evidence was that Maui’s dolphins visit the harbour infrequently and that the enclosed blades and large central opening would not be an obstacle for Maui’s dolphin.<sup>637</sup> The Court accepted that “the death of one Maui’s dolphin would be one too many.”<sup>638</sup> All things considered, the court reasoned that a two year baseline monitoring regime was appropriate as well as the fine tuning of ongoing monitoring which included porpoise detection devices and a series of aerial surveys over the area.<sup>639</sup>

## 7 *Antifoulant and Biosecurity*

Antifoulant and biosecurity are matters not raised in the decisions in Crest Energy but forms part of the resource consent conditions. Bio-fouling is the accumulation of sessile biota on the marine energy equipment.<sup>640</sup> No fouling is generally expected given high currents and the moving parts of marine energy equipment but such fouling can occur on anchors and mooring cables. The resource consent conditions specify that where antifoulant chemicals are used, this shall be confined to the disc / vane of each turbine, inside the collar, and inside any venturi attached (a device designed to enhance the natural flow).<sup>641</sup> In addition, a Biosecurity Management Plan is required to avoid the introduction of unwanted or risk species by vessels, marine turbines or ancillary equipment such as cables.<sup>642</sup>

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<sup>631</sup> At [125].

<sup>632</sup> At [139].

<sup>633</sup> At [145]-[146].

<sup>634</sup> *Crest Energy Kaipara Limited v Northland Regional Council* [2011] NZEnvC 26 at 87-88.

<sup>635</sup> *Crest Energy Kaipara Limited v Northland Regional Council* EnvC Auckland A 132/2009, 22 December 2009 at [149]-[150].

<sup>636</sup> At [151].

<sup>637</sup> At [154].

<sup>638</sup> At [164]-[165].

<sup>639</sup> At [168]; *Crest Energy Kaipara Limited v Northland Regional Council* [2011] NZEnvC 26 at 84.

<sup>640</sup> Aotearoa Wave and Tidal Energy Association, above n 621, at 33.

<sup>641</sup> *Crest Energy Kaipara Limited v Northland Regional Council* [2011] NZEnvC 26 at 41-42.

<sup>642</sup> At 40-41.

The Maori cultural dimension will often be present in marine energy developments. Section 59 of the Te Uri o Hau Settlement Act 2002 acknowledged the cultural, spiritual, historic and traditional association of Te Uri o Hau with the Kaipara Harbour. Therein, the Crown acknowledged that the historical loss of control over the land impeded the ability of Maori to exercise control over their taonga and waahi tapu and to maintain spiritual connections with their ancestral lands. Mention was made of a taniwha, Pokopoko, who guards Kaipara Harbour entrance.<sup>643</sup> Maori were also distressed that shifting sands would uncover koiwi (human remains).<sup>644</sup> The Environment Court noted that Crest Energy proposed a Kaipara Harbour Environmental Trust to fund “environmental restoration in and around Kaipara Harbour” which would “address aspects of cultural offence deriving from biological and physical degradation of past land and water management practices.”<sup>645</sup> Ultimately, Maori cultural concerns were held to be “adequately and appropriately addressed.”<sup>646</sup>

### *E Conclusion*

Marine energy in New Zealand as a way of producing renewable electricity and reducing greenhouse gas emissions is awakening. With advancing technology, New Zealand has not been shy to experiment. However, the everlasting debate over interests in the marine and coastal area would seem to act be a disincentive to such technology. It is submitted that marine energy developments in customary marine title areas would be considered as deemed accommodated infrastructure which should allow for the development of such technology. Public access to the marine and coastal area is central to the debates and marine development restricts navigation and fishing. There are other environmental effects such as on landscape, coastal processes, fish, marine mammals, and cultural interests but these will, at least initially, be protected through an adaptive management framework. It is becoming apparent that competing interests in the marine and coastal area are divided between those who seek to protect and those who seek to harness the power of the ocean.

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<sup>643</sup> At [191].

<sup>644</sup> At [191].

<sup>645</sup> At [203].

<sup>646</sup> At [214].

## *VII Conclusion to Renewable Energy*

Drawing the threads of renewable energy together, it is seen that renewable energy is at the forefront of New Zealand's attempts to reduce greenhouse gas emissions. The New Zealand Government's target for renewable electricity generation is being faithfully upheld. New Zealand's existing wealth of renewable resources and use for electricity generation has created a precedent for greater optimisation. In addition to greenhouse gas reductions from the utilisation of renewable resources, renewable energy allows diversification, security of supply and reductions in transmission losses. New Zealand has adopted a no ownership (res communes) model to the ownership of resources integrated with usufruct rights which can create tensions associated with land ownership. The application of this principle in the context of the RMA 1991 means that there is friction between the Act's purpose of sustainable management and adherence to "first-in-first-served" principle of resource allocation. Resource conflicts further highlight that limits to renewable resources are being found. The adverse environmental effects of the use of renewable resources for electricity generation are numerous but are not insurmountable. Maori cultural concerns form an integrated perspective to these environmental effects. The heart of such concerns whether through water, geothermal, wind and marine renewable resources is sustainability.

## Chapter 7

### Energy Efficiency and Conservation

[Energy efficiency is] the cheapest, cleanest, [and] fastest energy source

United States President Barack Obama<sup>1</sup>

#### *I Introduction*

In New Zealand, reducing greenhouse gas emissions through energy efficiency and conservation falls within the ambit of the Energy Efficiency and Conservation Authority (EECA). Among its objectives is reducing dependence on fossil fuels for energy in order to cut greenhouse gas emissions in a cost-effective and environmentally favourable manner. The EECA uses education and financial incentives to promote energy efficiency and conservation to break down market barriers which have been created by disaggregated rights. Real change is occurring with advancements in industry, business, transmission and distribution. This is complemented in the home with energy efficient smart meters, appliances and light bulbs. Warmer, healthier, more energy efficient homes have resulted from strengthening of the Building Code requirements. This holds true for existing buildings where there has been the addition of insulation, efficient heating and efficient hot water systems. The use of solar energy in building design, likewise, for hot water or electricity from photovoltaics is being embraced across New Zealand even though overseas feed-in tariff legislation has proved widespread. For transportation, fuel economy labelling rather than emissions standards is guiding change in New Zealand and there is a rise in the use of efficient public transportation. However, there are real limitations to the function that financial incentives and education can have in reducing energy consumption. Without evaluative targets, the process becomes haphazard. This chapter submits that the supplementation of market incentives amid tightening regulation is a partnership worth exploring to facilitate consumer choice.<sup>2</sup>

#### *II Energy Efficiency and Conservation in New Zealand*

As the phrase suggests, energy efficiency and conservation reduces greenhouse gas emissions by using less electricity. In this context, energy efficiency means using less energy to produce a given output and energy conservation means an overall reduction in energy use.<sup>3</sup> The aim is that there is an economically efficient use of that energy. Related benefits include

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<sup>1</sup> Michael Grunwald "America's Untapped Energy Resource: Boosting Efficiency" (31 December 2008) Time Magazine <www.time.com> as cited by Neil Peretz "Growing the Energy Efficiency Market through Third-Party Financing" (2009) 30 Energy LJ 377 at 378.

<sup>2</sup> Amanda Reilly "Regulation of Energy Efficiency: A Discussion of Policy, Ethical and Legal Issues Relevant to Achieving Efficient Use of Energy in New Zealand" (LLM Thesis, University of Auckland, 1998) at 42

<sup>3</sup> Marcel Eusterfeldhaus "The Law of End-Use Energy Efficiency" (LLM Thesis, University of Waikato, 2010) at 3.

less environmental impacts required for electricity generation, better health from improved heating and energy security protecting access to energy resources. The market should in theory provide for the most efficient outcome but there are several reasons for suboptimal energy efficiency. Consumers are given inadequate information as to the running costs of a product as opposed to the upfront purchase price.<sup>4</sup> This coupled with bounded rationality and decision heuristics means customers are more influenced by social background, time of the year, and personal mood in making product decisions than energy efficiency.<sup>5</sup> This inadequate information is perpetuated by the way in which electricity is paid for with customers paying a monthly averaged bill that does not reflect variation in costs between peak, shoulder, and off-peak periods.<sup>6</sup> There is also the principal/agent problem which is best exemplified by the example of a landlord making investments in a house and the tenant paying for the use of that house.<sup>7</sup> The landlord does not invest in energy efficient heating for heat the landlord will never enjoy. For low income households, there can be a lack of access to capital to fund energy efficient initiatives.<sup>8</sup> Another factor is the payback barrier where those who invest in energy efficient products expect to be paid back in the first few years for the investment which is an expectation well above most other investments.<sup>9</sup> Such consumers are unreasonably risk adverse and can be deterred by hidden costs such as building consents.<sup>10</sup> Lastly, the transition from external environmental costs to internalising such costs for energy production means there was an artificially low price for electricity in the past.<sup>11</sup> It is unsurprising, therefore, that in 2000 New Zealand was ranked 17<sup>th</sup> out of 22 OCED countries in terms of the efficient use of its energy.<sup>12</sup>

The principal / agent problem is a useful example of the tragedy of the anti-commons where disaggregated rights lead to a suboptimal outcome in the market.<sup>13</sup> Hardin's well known tragedy of the commons is where a lack of property rights in a common resource means that everyone pursues his or her own best interest to the detriment of all.<sup>14</sup> By contrast, Heller's tragedy of anti-commons occurs where too many disaggregated property rights in a single resource leads every property rights holder to exclude another so that the resource is

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<sup>4</sup> At 6.

<sup>5</sup> At 18-20.

<sup>6</sup> Parliamentary Commissioner for the Environment *Getting More From Less: A Review of Progress on Energy Efficiency and Renewable Energy Initiatives in New Zealand* (Wellington, 2000) at 49; Edan Rotenberg "Energy Efficiency in Regulated and Deregulated Markets" (2006) 24 JEL 259 at 271-272.

<sup>7</sup> Peretz, above n 1, at 386; Rotenberg, above n 6, at 281.

<sup>8</sup> PCE *Getting More From Less*, above n 6, at 48.

<sup>9</sup> Peretz, above n 1, at 385; Rotenberg, above n 6, at 283.

<sup>10</sup> Barry Barton "The Law of Energy Efficiency" in Donald Zillman and others (ed) *Beyond the Carbon Economy: Energy Law in Transition* (Oxford, Oxford University Press, 2008) 61 at 65.

<sup>11</sup> Eusterfeldhaus, above n 3, at 8; Rotenberg, above n 6, at 273.

<sup>12</sup> David Grinlinton "New Zealand's National Energy Efficiency and Conservation Strategy" (2002) 20 AMPLJ 326 at 326.

<sup>13</sup> Michael Heller "The Tragedy of the Anti-Commons: From Marx to Markets" (1998) 111 Harv L Rev 621.

<sup>14</sup> Garrett Hardin "The Tragedy of the Commons" (1968) 164 Science 1243.

underused. To purloin an old adage “too many cooks spoil the broth.”<sup>15</sup> For Heller, “[p]rivate ownership usually increases wealth, but too much ownership has the opposite effect: it wrecks markets, stops innovation, and costs lives.”<sup>16</sup> The anticommons tragedy calls for an amalgamation of rights. Property rights, therefore, needs to negotiate the continuum of ending up as a tragedy of the commons (common ownership) or a tragedy of the anti-commons at the other (too much private ownership). It has been seen that the no ownership model of fugacious resources requires a focus on sustainability. Here in this chapter on energy efficiency and later on carbon sequestration, manmade electricity or bioenergy can clearly be owned. When too many people control the use of the resource or for that matter not enough people control the use of the resource, inefficiencies can be “brutal and slow” to overcome.<sup>17</sup> Another useful example of the tragedy of the anti-commons is where a “patchwork of electric utility fiefdoms” obstruct efficient electricity transmission across boundaries.<sup>18</sup> Energy efficiency is plagued with these barriers that inhibit market solutions.

The extent of benefits to be derived from remedying the anticommons of energy efficiency is not undisputed. The rebound effect is where an improvement in energy efficiency is negated by increased demand.<sup>19</sup> A simple example of this effect is if an energy efficient car is bought, more driving is done.<sup>20</sup> Alternatively customers will trade in a small inefficient fridge for a large energy efficient fridge effectively offsetting any energy savings.<sup>21</sup> Obviously, the market will favour energy efficient products eventually and it must be acknowledged that overall energy use is increasing with population in spite of advances in energy efficiency.<sup>22</sup> Thus, although energy efficiency “may be the best way to address energy and environmental problems”, there are obviously “some uncomfortable questions about consumption.”<sup>23</sup> Energy efficiency is also disputed to the extent that customer choice is restricted.<sup>24</sup> A ban on incandescent light bulbs for energy efficient fluorescent bulbs is seen as controlling.<sup>25</sup> Letting the market decide means New Zealand homes are up to 5°C colder than the healthy temperature recommended by the World Health Organisation<sup>26</sup> because as

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<sup>15</sup> Michael Heller *The Gridlock Economy: How Too Much Ownership Wrecks Market, Stops Innovation, and Costs Lives* (Basic Books, New York, 2008) at 188.

<sup>16</sup> At 2.

<sup>17</sup> Heller “The Tragedy of the Anti-Commons”, above n 13, at 625.

<sup>18</sup> Heller *The Gridlock Economy*, above n 15, at 20.

<sup>19</sup> Tom Kearney “Market-Based Policies for Demand Side Energy Efficiency: A Comparison of the New South Wales Greenhouse Gas Abatement Scheme and the United Kingdom's Energy Efficiency Commitment” (2006) 23(2) EPLJ 113 at 116.

<sup>20</sup> Barton, above n 10, at 69.

<sup>21</sup> Marcel Eusterfeldhaus and Barry Barton “Energy Efficiency: A Comparative Analysis of the New Zealand Legal Framework” (2011) 29(4) J Energy Nat Resources and Env'tl L 431 at 436.

<sup>22</sup> Barton, above n 10, at 69.

<sup>23</sup> At 73.

<sup>24</sup> Reilly, above n 2, at 33.

<sup>25</sup> Eusterfeldhaus and Barton, above n 21, at 436.

<sup>26</sup> Eusterfeldhaus, above n 3, at 5.

Treasury stated in 1995, it was unclear that there needed to be regulation of “private energy-efficiency investment decisions [as there] does not appear to be an externality.”<sup>27</sup>

In order to address New Zealand’s poor record, the EECA was established by a Cabinet minute in 1992 and later was given a statutory basis under the Energy Efficiency and Conservation Act 2000 (EECA 2000).<sup>28</sup> Despite international concern and economic justifications, the New Zealand Business Roundtable submitted that “there is no sound justification for the [EECA] and for legislation and regulations relating to energy efficiency standards.”<sup>29</sup> Nevertheless, with a statutory basis the EECA has continued to sustainably<sup>30</sup> “encourage, promote, and support energy efficiency, energy conservation, and the use of renewable sources of energy.”<sup>31</sup> It assists the relevant Minister in preparing and administering a strategy; promotes public awareness, practices and technologies; conducts relevant research; monitors and reviews the current state of such activities.<sup>32</sup> The EECA may make grants, awards, or loans and can enter into agreements for the administration of grants.<sup>33</sup> There have been three Energy Efficiency and Conservation Strategies promulgated under this Act. The first in 2001 set a target of 20 per cent in economy-wide energy efficiency by 2012 and an increase in renewable energy of 25-55 petajoules (PJ).<sup>34</sup> The second in 2007 proposed minimum energy performance standards for more products and existing buildings as well as Energy Star labels for other products.<sup>35</sup> It identified the energy savings in petajoules that each proposal was to deliver without specifying a national target.<sup>36</sup> The third in 2011 created a New Zealand energy efficiency target “to achieve a rate of energy intensity improvement of 1.3 percent per annum.”<sup>37</sup> As Eusterfeldhaus and Barton note “the targets in the three [strategies] are different in character and are sometimes obscurely stated.”<sup>38</sup> The strategies are intentionally vague with “a lack of firm commitment to action.”<sup>39</sup> Any data is “inconsistent, unsubstantiated, discontinuous, and uninformative” with no clear evidence of “monitoring and evaluation.”<sup>40</sup>

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<sup>27</sup> PCE *Getting More From Less*, above n 6, at 62.

<sup>28</sup> At 25; EECA 2000, s 20.

<sup>29</sup> PCE *Getting More From Less*, above n 6, at 112.

<sup>30</sup> EECA 2000, s 6.

<sup>31</sup> EECA 2000, s 21.

<sup>32</sup> EECA 2000, s 21.

<sup>33</sup> EECA 2000, s 22.

<sup>34</sup> Energy Efficiency and Conservation Authority “National Energy Efficiency and Conservation Strategy: Towards a Sustainable Energy Future 2001” (September 2001) <[www.eeca.govt.nz](http://www.eeca.govt.nz)> at 6.

<sup>35</sup> Energy Efficiency and Conservation Authority “New Zealand Energy Efficiency and Conservation Strategy - Making It Happen – Action Plan to Maximise Energy Efficiency and Renewable Energy 2007” (October 2007) <[www.eeca.govt.nz](http://www.eeca.govt.nz)> at 12.

<sup>36</sup> Eusterfeldhaus and Barton, above n 21, at 444.

<sup>37</sup> Energy Efficiency and Conservation Authority “Developing Our Energy Potential: The New Zealand Energy Strategy 2011-2021 and the New Zealand Energy Efficiency and Conservation Strategy 2011-2016” (August 2011) Ministry of Economic Development <[www.med.govt.nz](http://www.med.govt.nz)> at 17.

<sup>38</sup> Eusterfeldhaus and Barton, above n 21, at 448.

<sup>39</sup> International Energy Agency *Energy Policies of IEA Countries – New Zealand 2010 Review* (International Energy Agency, Paris, 2010) at 10.

<sup>40</sup> Eusterfeldhaus and Barton, above n 21, at 448.

## *A Industry and Business*

Energy efficiency in business while reducing greenhouse gases has the benefit of increased competitiveness and productivity.<sup>41</sup> The EECA supplies various detailed informational brochures, videos, energy use software, webinars and training about how to use energy more efficiently. Thus, EECA supplements rather than supplants the market for engaging in energy efficiency. For industry, EECA offers funding for “base-level” or “investment-level” energy audits.<sup>42</sup> Electric motors involved may include pumps, fans, compressed air, heat and refrigeration systems.<sup>43</sup> Moreover, extra funding for feasibility studies is available.<sup>44</sup> Following the energy audit, the EECA may make a project grant.<sup>45</sup> For commercial buildings, grants can be awarded for commercial projects, energy management, and commercial building design.<sup>46</sup> In a similar way, grants are given to small and medium sized businesses for energy audits and projects.<sup>47</sup> Crown loans are, additionally, available for government departments, district health boards, crown owned entities, territorial authorities, regional councils, universities, polytechnics and public schools.<sup>48</sup> These can be important for HVAC (heating, ventilation and air conditioning) systems and lighting. Significant barriers exist in the public sector (particularly for hospitals and schools) because funds are always reallocated as energy efficiency is repeatedly dismissed as a low priority. More effective use of energy can be achieved with renewable energy projects such as the conversion of inefficient diesel or natural gas boilers to efficient wood pellet or used oil boilers. It must be warned, however, that funding is held explicitly to break down market barriers.<sup>49</sup>

## *B Transmission and Distribution*

As cited before, the Electricity Authority reports that in 2011 transmission and distribution accounted for 8 per cent and 29 per cent respectively of residential electricity costs.<sup>50</sup> Ensuring efficiency in transmission (big high voltage power lines) and distribution (small low voltage power lines) is paramount. An answer to this problem, known as the Smart Grid, integrates computer software and communication technologies with electricity infrastructure.<sup>51</sup> Lyster acclaims that “the Smart Grid is poised to make a considerable

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<sup>41</sup> Reilly, above n 2, at 15.

<sup>42</sup> EECA Business “Industrial Energy Audit Grants” (2012) <[www.eecabusiness.govt.nz](http://www.eecabusiness.govt.nz)>.

<sup>43</sup> EECA Business “Industrial Energy Audit Grants”, above n 42.

<sup>44</sup> EECA Business “Feasibility Study Grants” (2012) <[www.eecabusiness.govt.nz](http://www.eecabusiness.govt.nz)>.

<sup>45</sup> EECA Business “Industrial Energy Programme: Project Grants” (2012) <[www.eecabusiness.govt.nz](http://www.eecabusiness.govt.nz)>.

<sup>46</sup> EECA Business “Commercial Buildings Programme” (2012) <[www.eecabusiness.govt.nz](http://www.eecabusiness.govt.nz)>.

<sup>47</sup> EECA Business “Energising Business” (2012) <[www.eecabusiness.govt.nz](http://www.eecabusiness.govt.nz)>.

<sup>48</sup> EECA Business “Crown Loans” (2012) <[www.eecabusiness.govt.nz](http://www.eecabusiness.govt.nz)>.

<sup>49</sup> EECA Business “Commercial Project Grants” (2012) <[www.eecabusiness.govt.nz](http://www.eecabusiness.govt.nz)>.

<sup>50</sup> Electricity Authority “Electricity in New Zealand 2011” (2011) <[www.ea.govt.nz](http://www.ea.govt.nz)> at 25.

<sup>51</sup> Alison Graab “The Smart Grid: A Smart Solution to a Complicated Problem” (2011) 52 Wm and Mary L Rev 2051 at 2054.



contribution to the mitigation of climate change.”<sup>52</sup> The Smart Grid electronically monitors and reroutes electricity efficiently to locations where demand is critical in a finely tuned and responsive way.<sup>53</sup> The Smart Grid knows precisely when an overload will occur<sup>54</sup> and the number of houses affected.<sup>55</sup> It allows for the introduction of intermittent distributed generation such as small scale wind or photovoltaic solar panels at almost any point on the transmission grid which reduces transmission and distribution losses.<sup>56</sup> Of course, renewable energy must be generated at the site of the renewable resource and any electricity transmitted to demand whereas fossil fuels can be cheaply transported to demand for electricity generation.<sup>57</sup> Smart Grids are also poised to integrate electricity storage and peak-saving technologies such as electric vehicles and thermal storage air conditioning.<sup>58</sup> Smart meters, discussed below, are integral to the system. Given the size of the European Union, United States, and Australia, the Smart Grid guarantees interoperability. Fragmentation acts as a barrier to energy efficiency and has the potential to create a tragedy of the anticommons.

In New Zealand, efficiency of the electricity market is achieved with the Electricity Authority under the Electricity Industry Act 2010 and the activities of industry participants are governed by the lengthy Electricity Industry Participation Code 2010. The objective of the Electricity Authority is “to promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers.”<sup>59</sup> This objective fits well with the need to upgrade infrastructure to meet future demand in a Smart Grid as New Zealand’s electricity infrastructure was built in the 1950s and 1960s.<sup>60</sup> Transpower,<sup>61</sup> the owner and operator of New Zealand’s National Grid, is currently engaged in the North Island Grid Upgrade Project<sup>62</sup> and the upgrading of the Inter-Island HVDC link<sup>63</sup> which loses significant electricity in transmission.<sup>64</sup> Part 12 of the Electricity Industry Participation Code 2010 (EIPC 2010) deals with transmission through transmission agreements, benchmark agreements, the connection code, outage protocol, grid reliability standards, investment

<sup>52</sup> Rosemary Lyster “Smart Grids: Opportunities for Climate Change Mitigation and Adaptation” (2010) 36 *Monash U L Rev* 173 at 173.

<sup>53</sup> At 175; Jan Wright “Submission to the Finance and Expenditure Committee on the Electricity Industry Bill: 26 February 2010” (2010) Parliamentary Commissioner for the Environment <[www.pce.parliament.nz](http://www.pce.parliament.nz)> at 3.

<sup>54</sup> Jan Wright “Submission on the Electricity Industry Bill”, above n 53, at 3.

<sup>55</sup> Jan Wright “Presentation to the Commerce Select Committee on Smart Meters and Smart Grid: 11 August 2011” (2011) Parliamentary Commissioner for the Environment <[www.pce.parliament.nz](http://www.pce.parliament.nz)> at 8.

<sup>56</sup> Lyster, above n 52, at 176.

<sup>57</sup> Timothy Duane “Greening the Grid: Implementing Climate Change Policy Through Energy Efficiency, Renewable Portfolio Standards, and Strategic Transmission System Investments” (2010) 34 *Vt L Rev* 711 at 766.

<sup>58</sup> Lyster, above n 52, at 180.

<sup>59</sup> Electricity Industry Act 2010, s 15.

<sup>60</sup> Nirmal-Kumar Nair and Lixi Zhang “SmartGrid: Future Networks for New Zealand Power Systems Incorporating Distributed Generation” (2009) 37 *Energy Policy* 3418 at 3419.

<sup>61</sup> Electricity Industry Act 2010, s 8.

<sup>62</sup> Transpower “North Island Grid Upgrade” (2012) Grid New Zealand <[www.gridnewzealand.co.nz](http://www.gridnewzealand.co.nz)>; *Report and Decision of the Board of Inquiry into the Upper North Island Grid Upgrade Project* (18 September 2009).

<sup>63</sup> Transpower “HVDC Inter-Island Link Project” (2012) Grid New Zealand <[www.gridnewzealand.co.nz](http://www.gridnewzealand.co.nz)>.

<sup>64</sup> *Genesis Power Limited v Franklin District Council* [2005] NZRMA 541 (EnvC) at [64](vi)(d).

contracts, interconnection rules, and the transmission pricing methodology. Part 6 of the EIPC 2010 provides for the connection of distributed generation. This involves an application and approval process between a generator and distributor.<sup>65</sup> The process is different for electricity generation that is less than or equal to 10kW and generation that is greater than 10kW.<sup>66</sup> There are default terms as to connection, dispute resolution processes and pricing principles although on occasion these can be contracted out by mutual agreement. Although New Zealand does not have feed in tariffs, the process of connection of distributed generation to the network is recognition of the growing integration of small scale distributed generation.

### C *Smart Meters*

Smart meters are electricity meters that record half-hour electricity consumption and communicate such readings back to the electricity provider.<sup>67</sup> They achieve energy efficiency and conservation through information disclosure. Smart meters act in real time to fill the consumer information gap where an unenlightening monthly bill is sent after electricity consumption. As smart meters track electricity consumption, this information is available to customers on the internet or via text messaging.<sup>68</sup> Smart meters can have in home display (IHD) which is a digital appliance that shows electricity use based on the level of electricity consumption which should reduce peak consumption.<sup>69</sup> Smart meters can be used along with a home area network (HAN) to mean that appliances are responsive to peak demand given the higher price of electricity at such times.<sup>70</sup> A fridge, dishwasher or heater as part of a home area network could automatically reschedule electricity use to off-peak times.<sup>71</sup> This load shifting is agile to the needs of renewable energy.<sup>72</sup> The PCE is critical of the unregulated roll out of smart meters in New Zealand as retailers, rather than the government, are taking charge due to the benefits of remote meter reading.<sup>73</sup> Retailers have a disincentive to have any more accessories than necessary as they may earn less revenue if customers reduce electricity consumption.<sup>74</sup> Thus, IHD and HAN have been left out of installed smart meters to be retrofitted afterwards. In this respect, the Commissioner refers to such smart meters as dumb<sup>75</sup> and the equivalent of Wellington and Auckland having different electrical sockets.<sup>76</sup>

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<sup>65</sup> Electricity Authority “Electricity Industry Participation Code 2010” (2012) <www.ea.govt.nz>, pt 6.

<sup>66</sup> Electricity Authority “Electricity Industry Participation Code 2010”, above n 65, pt 6.

<sup>67</sup> Parliamentary Commissioner for the Environment *Smart Electricity Meters: How Households and the Environment can Benefit* (Wellington, 2009) at 8; See generally Electricity Authority “Electricity Industry Participation Code 2010”, above n 65, pt 10.

<sup>68</sup> At 17.

<sup>69</sup> At 44.

<sup>70</sup> At 28.

<sup>71</sup> At 27.

<sup>72</sup> At 14.

<sup>73</sup> At 9.

<sup>74</sup> At 9; Sandra Levine and Katie Kendall “Energy Efficiency and Conservation: Opportunities, Obstacles, and Experiences” (2006) 8 Vt J Env’t L 101 at 103.

<sup>75</sup> At 30.

<sup>76</sup> Jan Wright “Submission on the Electricity Industry Bill”, above n 53, at 5.

This is augmented by lines and appliance companies who both call for consistency.<sup>77</sup> The Electricity Authority has unfalteringly favoured the unregulated voluntary methodology of retailers.<sup>78</sup>

#### *D Appliances*

Energy efficiency of appliances is achieved under s 36 of the EECA 2000. Regulations may be made under that provision to prescribe minimum energy performance standards for energy-using products and services, prescribe requirements for labelling, compel evidence of compliance including testing and verifying, require prescribed information, and the creation of associated offences for contravention of the regulations.<sup>79</sup> Regulation 4 of the Energy Efficiency (Energy Using Products) Regulations 2002 specifies that no person may sell any new item or the assembly to any person unless “the energy performance characteristics of that item comply with the standards for that item’s product class” and that an administrative procedure is complied with.<sup>80</sup> Such specified products include certain ballasts for fluorescent lamps, chillers, air conditioners, distribution transformers, external power supplies, gas water heaters, household refrigerating appliances, electric water heaters, refrigerated display cabinets, set-top boxes, air-to-air heat pumps, induction motors and tubular fluorescent lamps.<sup>81</sup> Regulation 6 provides that any person may not sell any new item unless “a label that complies with the standards for that item’s product class... is attached.”<sup>82</sup> Such products include clothes washing machines, dishwashers, household refrigerating appliances, rotary clothes dryers, and specified air conditioners and heat pumps.<sup>83</sup> In short, the EECA prohibits the sale of certain products using minimum energy performance standards and labelling to inform consumers is required for others. New Zealand seems to be abreast of international developments and aware of provisions in the Trans-Tasman Mutual Recognition Act 1997.<sup>84</sup> There is room for improvement, nonetheless, especially with regards to standby or phantom power of inefficient appliances.<sup>85</sup> The favouring of labelling rather than prohibition is consistent with the New Zealand adoption of the international voluntary programme “Energy Star” which is awarded to the top 25 per cent of the most energy-efficient appliances.<sup>86</sup>

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<sup>77</sup> At 6.

<sup>78</sup> Electricity Commission “Advanced Metering Policy: May 2008” (2008) Electricity Authority <[www.ea.govt.nz](http://www.ea.govt.nz)> at 10.

<sup>79</sup> EECA 2000, s 36(1).

<sup>80</sup> Energy Efficiency (Energy Using Products) Regulations 2002, reg 4.

<sup>81</sup> Energy Efficiency (Energy Using Products) Regulations 2002, sch 1.

<sup>82</sup> Energy Efficiency (Energy Using Products) Regulations 2002, reg 6.

<sup>83</sup> Energy Efficiency (Energy Using Products) Regulations 2002, sch 2.

<sup>84</sup> Energy Efficiency (Energy Using Products) Amendment Regulations 2011; Trans-Tasman Mutual Recognition Act 1997, s 10; Eusterfeldhaus and Barton, above n 21, at 451

<sup>85</sup> Alon Tal “Tried and True: Reducing Greenhouse Gas Emissions in New Zealand Thorough Conventional Environmental Legislative Modalities” (2009) 12(1) Otago L Rev 149 at 172-175.

<sup>86</sup> Eusterfeldhaus, above n 3, at 33.

## *E Lightbulbs*

New Zealand has not prohibited incandescent light bulbs preferring to entrench freedom of customer choice.<sup>87</sup> The metal filament of incandescent light bulbs is inefficient as electricity is used to produce heat and the light is a mere by-product.<sup>88</sup> The alternative compact florescent light bulbs are more efficient and should last longer but small amounts of mercury contained inside create a disposal problem.<sup>89</sup> The words of Energy Star on florescent light bulbs is instructive because if every United States home used one high-use fluorescent light bulb, the reduction in greenhouse gases would be equal to taking 800,000 cars off the road.<sup>90</sup> In Australia, there is a phase out of inefficient incandescent bulbs which has been established through import restrictions for incandescent light bulbs.<sup>91</sup> In New Zealand, the establishment of the Efficient Lighting Group<sup>92</sup> produced the now obsolete New Zealand Efficient Lighting Strategy.<sup>93</sup> The EECA is currently working with bulb manufacturers and distributors to offer a range of subsidised efficient lighting products<sup>94</sup> and are working towards road lighting efficiency.<sup>95</sup> Furthermore, EECA promotes a website called RightLight which has interactive tools to evaluate the potential savings from energy efficient lighting.<sup>96</sup>

## *F Building Standards*

Energy efficiency of buildings in New Zealand is regulated by the Building Act 2004 (BA 2004) which includes among its purposes that “buildings are designed, constructed and able to be used in ways that promote sustainable development.”<sup>97</sup> This recognises “the need to facilitate the efficient use of energy and energy conservation and the use of renewable sources of energy in buildings.”<sup>98</sup> There is a “need to facilitate the efficient and sustainable use in building of” materials and material conservation.<sup>99</sup> Warnock adds that the purpose to promote rather than to achieve sustainable development reflects a pragmatic approach to outcomes. These outcomes could be delivered under the RMA 1991<sup>100</sup> and the extent to which the RMA 1991 has power to override the BA 2004 is subject to a fine distinction

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<sup>87</sup> Eusterfeldhaus and Barton, above n 21, at 451-452.

<sup>88</sup> Alon Tal (ed) *Legal Strategies for Controlling Greenhouse Gas Emissions in New Zealand* (Dunedin, University of Otago Law Faculty, 2008) at 70.

<sup>89</sup> At 70.

<sup>90</sup> Energy Star “Light Bulbs for Consumers” (2012) <[www.energystar.gov](http://www.energystar.gov)>.

<sup>91</sup> Department of Climate Change and Energy Efficiency “Lighting” (2012) <[www.climatechange.gov.au](http://www.climatechange.gov.au)>.

<sup>92</sup> Energy Efficiency and Conservation Authority “Efficiency Lighting Programmes” (2012) <[www.eeca.govt.nz](http://www.eeca.govt.nz)>.

<sup>93</sup> Efficient Lighting Group “New Zealand Efficient Lighting Strategy 2008 to 2010” (2008) Energy Efficiency and Conservation Authority <[www.eeca.govt.nz](http://www.eeca.govt.nz)>.

<sup>94</sup> Energy Efficiency and Conservation Authority “Other Lighting Programmes” (2012) <[www.eeca.govt.nz](http://www.eeca.govt.nz)>.

<sup>95</sup> Energy Efficiency and Conservation Authority “Efficient Road Lighting” (2012) <[www.eeca.govt.nz](http://www.eeca.govt.nz)>.

<sup>96</sup> Energy Efficiency and Conservation Authority “RightLight” (2012) <[www.eeca.govt.nz](http://www.eeca.govt.nz)>.

<sup>97</sup> Building Act 2004, s 3.

<sup>98</sup> Building Act 2004, s 4(2)(m).

<sup>99</sup> Building Act 2004, s 4(2)(n).

<sup>100</sup> Ailsa Ceri Warnock “Sustainable Construction in New Zealand” (2005) 9 NZJEL 337 at 367.

between the requirements for the physical building structure and the use of that building.<sup>101</sup> This view holds that the RMA 1991 is about activities while the BA 2004 is about the buildings themselves. It is an uneasy distinction because activities rely on buildings and buildings rely on activities. The BA 2004 has set performance criteria<sup>102</sup> and it would lead to an absurd situation if a building could be built but never used because RMA 1991 requires greater levels of building energy efficiency. The detailed energy efficient requirements in the BA 2004 would sit uncomfortably with the ethereal RMA 1991 attempts to regulate building energy efficiency.<sup>103</sup> Perhaps the true test is that the more stringent prescription authorised by the two Acts should prevail and that territorial authorities do not have the power “carte blanche to supplement or depart from” the BA 2004.<sup>104</sup> Likewise, development contributions under the Local Government Act 2002 to ensure sustainable construction as assessed under the Green Home Scheme risks rewriting the BA 2004 altogether.<sup>105</sup>

The BA 2004’s energy efficiency provisions are expanded upon in the building code which have the effect of regulations.<sup>106</sup> Clause H 1 of the Building Code details energy efficiency objectives.<sup>107</sup> These state that “[b]uildings must be constructed to achieve an adequate degree of energy efficiency when that energy is used for (a) modifying temperature, modifying humidity, providing ventilation [or] (b) providing hot water to and from sanitary fixtures or sanitary appliances [or] (c) providing artificial lighting.”<sup>108</sup> The building envelope must be constructed to provide adequate thermal resistance and limit uncontrollable airflow.<sup>109</sup> Buildings must be constructed to ensure that their building performance index does not exceed 1.55<sup>110</sup> which is calculated using a specified computer programme.<sup>111</sup> Account must be taken of physical conditions affecting energy performance such as the thermal mass of the building elements, the building orientation and shape, the airtightness of the building envelope, the heat gains from services, processes and occupants, the local climate and the heat gains from solar radiation.<sup>112</sup> Systems for the heating, storage, or distribution of hot water to and from sanitary fixtures or sanitary appliances must consider the energy source to limit energy lost during heating.<sup>113</sup> Artificial lighting fixtures must be located and sized to limit energy use, consistent with the intended space use and be fitted with a means to enable light intensities to be reduced, consistent with reduced activity in the

<sup>101</sup> *Christchurch International Airport Ltd v Christchurch City Council* [1997] 1 NZLR 573 (HC).

<sup>102</sup> Building Act 2004, s 18.

<sup>103</sup> Warnock, above n 100, at 366.

<sup>104</sup> *Christchurch International Airport Ltd v Christchurch City Council* [1997] 1 NZLR 573 (HC) at 580.

<sup>105</sup> Local Government Act 2002, ss 197-211; Warnock, above n 100, at 372 – 376.

<sup>106</sup> Building Act 2004, s 400.

<sup>107</sup> Building Regulations 1992, sch 1, cl H1.

<sup>108</sup> Building Regulations 1992, sch 1, cl H1.2.

<sup>109</sup> Building Regulations 1992, sch 1, cl H1.3.1.

<sup>110</sup> Building Regulations 1992, sch 1, cl H1.3.2E.

<sup>111</sup> Department of Building and Housing “New H1 Requirement for Houses – Q and A” (2012) <[www.dhb.govt.nz](http://www.dhb.govt.nz)>.

<sup>112</sup> Building Regulations 1992, sch 1, cl H1.3.3.

<sup>113</sup> Building Regulations 1992, sch 1, cl H1.3.4.

space.<sup>114</sup> Lastly, HVAC systems must be located, constructed, and installed to (a) limit energy use, consistent with the intended space use and (b) enable them to be maintained to ensure their use of energy remains limited.<sup>115</sup> Several limits on the application of those provisions apply such as applicability to either commercial or residential buildings only.<sup>116</sup> Despite these provisions, Tal suggests that the “[e]xisting... building codes could be far more rigorous about energy efficiency [such] as lowering ceiling heights.”<sup>117</sup>

The energy efficiency objectives of the Building Code are supported by the detail of New Zealand Standards. New Zealand Standards prescribe energy efficiency requirements for the building thermal envelope<sup>118</sup> and lighting<sup>119</sup> of large buildings as well as energy efficiency requirements for housing and small buildings<sup>120</sup> and the installation of insulation in residential buildings.<sup>121</sup> There is also a standard for hot water systems.<sup>122</sup> Generally these standards specify the thermal requirements for glazing and the degree of insulation necessary. There are three climate zones to which the standards apply.<sup>123</sup> The Franklin District, Auckland, Coromandel, and Northland form the first zone. The second zone is the rest of the North Island excluding the Central North Island given its height above sea level. The third zone is the Central North Island and the South Island. This would seem to satisfy Warnock’s concern that the Building Code applies unilaterally to all of New Zealand and does not have regional variation like the RMA 1991.<sup>124</sup>

This emphasis on new buildings ignores the need for energy efficiency in existing buildings. Garry explains that of the 1.6 million homes in New Zealand, over 1 million were constructed before insulation was mandatory.<sup>125</sup> The EECA estimate that today 750,000 homes in New Zealand have inadequate under floor or ceiling insulation.<sup>126</sup> The EECA provides funding for homeowners to overcome the market barriers to installation of insulation and clean heating sources. Known as the Warm Up New Zealand: Heat Smart programme,

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<sup>114</sup> Building Regulations 1992, sch 1, cl H1.3.5.

<sup>115</sup> Building Regulations 1992, sch 1, cl H1.3.6.

<sup>116</sup> Building Regulations 1992, sch 1, cl H1.

<sup>117</sup> Tal “Tried and True”, above n 85, at 177.

<sup>118</sup> Standards New Zealand NZS 4243:2007 *Energy Efficiency – Large Buildings Part 1: Building Thermal Envelope* (Wellington, 2007).

<sup>119</sup> Standards New Zealand NZS 4243:2007 *Energy Efficiency – Large Buildings Part 2: Lighting* (Wellington, 2007).

<sup>120</sup> Standards New Zealand NZS 4218: 2009 *Thermal Insulation: Housing and Small Buildings* (Wellington, 2009).

<sup>121</sup> Standards New Zealand NZS 4246:2006 *Energy Efficiency – Installing Insulation in Residential Buildings* (Wellington, 2006).

<sup>122</sup> Standards New Zealand NZS 4305:1996 *Energy Efficiency Domestic Type Hot Water Systems* (Wellington, 1996).

<sup>123</sup> Standards New Zealand NZS 4218: 2009, above n 120, app B.

<sup>124</sup> Warnock, above n 100, at 347.

<sup>125</sup> Thomas Garry “Turning Buildings Green: Instruments for Improving the Energy Performance of Existing Buildings” (2008) 12 NZJEL 233 at 250.

<sup>126</sup> EECA Energywise “Getting Insulation Installed under the Warm Up New Zealand: Heat Smart Programme” (2012) <[www.energywise.govt.nz](http://www.energywise.govt.nz)>.

the EECA uses approved service providers to properly complete the work in accordance with strict auditing procedures.<sup>127</sup> If a homeowner holds a community services card (CSC) or there are CSC tenants, greater funding is available.<sup>128</sup> Funding may be higher where third party funding from charities, lines companies or councils is provided.<sup>129</sup> Funding for under floor moisture barriers, draught proofing of doors, hot water cylinder wrap and hot water pipe lagging is available.<sup>130</sup> If a home is insulated, heating funding is obtainable for specified heat pumps, wood burners, pellet burners and flued gas heaters.<sup>131</sup> Extra funding is also available towards the decommissioning of inefficient open fires or wood burners if that form of heating is in an area which exceeds the limits of the National Environmental Standard for Air Quality.<sup>132</sup> Those regulations create a thermal efficiency standard for wood burners which ensures the ratio of useable heat energy output to energy input is not less than 65 per cent.<sup>133</sup>

The biggest advance in energy efficiency in buildings comes from the private sector. The billion dollar HouseHold Fund to reduce greenhouse gas emissions from the residential building sector as part of the emissions trading scheme was scuttled in 2008.<sup>134</sup> Nevertheless, private sector groups such as BRANZ (Building Research Association of New Zealand) and NZGBC (New Zealand Green Building Council) in association with the government departments have created Homestar for residential properties.<sup>135</sup> Homestar is an online assessment tool which allows owners to assess their home's energy efficiency, comfort and health performance.<sup>136</sup> Homestar certification involves an assessment followed by a certificate which can be used when advertising for selling or renting.<sup>137</sup> Homestar has 10 stars with 1 star representing underperformance and 10 being world leading.<sup>138</sup> A new home built to the current building code will receive about 4 stars.<sup>139</sup> An associated tool is New Zealand Green Building Council's Greenstar for commercial buildings such as offices, industrial and education facilities.<sup>140</sup> This has six stars.<sup>141</sup> Greenstar assesses the environmental impact of green buildings at each of the design, built and performance phases.<sup>142</sup> These star systems are analogous to international voluntary approaches such as the Energy Star's venture from

<sup>127</sup> EECA Energywise "Information about Approved Service Providers" (2012) <[www.energywise.govt.nz](http://www.energywise.govt.nz)>.

<sup>128</sup> EECA Energywise "Getting Insulation", above n 126.

<sup>129</sup> EECA Energywise "Getting Insulation", above n 126.

<sup>130</sup> EECA Energywise "Getting Insulation", above n 126.

<sup>131</sup> EECA Energywise "Getting Clean Efficient Heating Installed under the Warm Up New Zealand: Heat Smart Programme" (2012) <[www.energywise.govt.nz](http://www.energywise.govt.nz)>.

<sup>132</sup> EECA Energywise "Clean Air Funding" (2012) <[www.energywise.govt.nz](http://www.energywise.govt.nz)>.

<sup>133</sup> Resource Management (National Environmental Standards for Air Quality) Regulations 2004, reg 24.

<sup>134</sup> Garry, above n 125, at 236; Climate Change Response (Moderated Emissions Trading) Amendment Act 2009, s 82.

<sup>135</sup> Homestar "Live Better with Homestar Now and For the Future" (2012) <<http://homestar.org.nz>>.

<sup>136</sup> EECA "Developing Our Energy Potential", above n 37 at 23.

<sup>137</sup> Homestar "Certified Assessment" (2012) <<http://homestar.org.nz>>.

<sup>138</sup> Homestar "Frequently Asked Questions" (2012) <<http://homestar.org.nz>>.

<sup>139</sup> Homestar "Frequently Asked Questions", above n 138.

<sup>140</sup> New Zealand Green Building Council "Introduction to Green Star Rating Tools" (2012) <[www.nzgbc.org.nz](http://www.nzgbc.org.nz)>.

<sup>141</sup> New Zealand Green Building Council "About Green Star" (2012) <[www.nzgbc.org.nz](http://www.nzgbc.org.nz)>.

<sup>142</sup> New Zealand Green Building Council "Introduction", above n 140.

appliances into energy efficient built design<sup>143</sup> and the LEED (Leadership in Energy and Environmental Design) rating system for certification which has Certified, Silver, Gold or Platinum based on sustainability achieved in construction.<sup>144</sup>

With regard to energy efficiency in existing buildings, New Zealand's use of financial incentives is prone to political interference. A superior approach is found in Australia where the Building Energy Efficiency Disclosure Act 2010 (Cth) requires a Building Energy Efficiency Certificate to be carried out by an accredited assessor for mandatory disclosure of the energy efficiency performance of large commercial buildings.<sup>145</sup> This disclosure obligation applies to the offer, invitation of offers, sale, lease and sublease of such premises. Thus any advertising about the sale of lease to prospective buyers and tenants must include disclosure. Although these obligations only apply to specified commercial premises, in Australian Capital Territory (ACT) and Queensland, compulsory disclosure of the energy efficiency of residential buildings is mandated. In ACT, all advertisements for the sale of residential premises must contain a statement of the energy efficiency rating and the vendor is required to supply the prospective buyer with a copy of the rating statement before entering into legal relations and the buyer is required to certify that a rating statement has been received.<sup>146</sup> In Queensland, a vendor must complete a sustainability declaration to identify the property's sustainability features which can be significant for energy, water, safety and access.<sup>147</sup> To take a different example, in the European Union the Directive on the Energy Performance of Buildings<sup>148</sup> requires a common system for the energy performance of all buildings including existing buildings. This requires minimum building energy performance. When a specified floor area undergoes a major renovation, all of the building must be upgraded to the minimum energy performance requirements.<sup>149</sup> Importantly, when any existing building is sold or rented, an energy performance certificate is required to inform consumers and advise the consumer of cost-effective improvements for increasing energy performance.<sup>150</sup> This Directive has been implemented in the United Kingdom.<sup>151</sup>

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<sup>143</sup> Edna Sussman "Reshaping Municipal and County Law to Foster Green Building, Energy Efficiency, and Renewable Energy" (2008) 16 NYU Env'tl L J 1 at 12.

<sup>144</sup> At 10; Cullen Howe and Michael Gerrard (ed) *The Law of Green Buildings: Regulatory and Legal Issues in Design, Construction, Operation and Financing* (American Bar Association, Chicago, 2010); See generally: David Dell "Climate Change and Property Law" in Dennis Mahony (ed) *The Law of Climate Change in Canada* (Canada Law Book, Toronto, 2010) ch 17.

<sup>145</sup> Building Energy Efficiency Disclosure Act 2010 (Cth)

<sup>146</sup> Civil Law (Sale of Residential Property) Act 2003 (ACT), pt 3; Nicola Durrant *Legal Responses to Climate Change* (Federation Press, Sydney, 2010) at 142.

<sup>147</sup> At 142; Building Act 1975 (Qld), ch 8A.

<sup>148</sup> Directive 2010/31/EU on the Energy Performance of Buildings (Recast) [2010] OJ L153/13.

<sup>149</sup> Directive 2010/31/EU on the Energy Performance of Buildings (Recast) [2010] OJ L153/13, art 7.

<sup>150</sup> Directive 2010/31/EU on the Energy Performance of Buildings (Recast) [2010] OJ L153/13, art 11.

<sup>151</sup> Buildings (Certificates and Inspections) (England and Wales) Regulations 2007; Energy Performance of Buildings (Scotland) Regulations 2008; Energy Performance of Buildings (Certificates and Inspections) Regulations (Northern Ireland) 2008.



Barton and Eusterfeldhaus deride the incoherency of New Zealand's targets for energy efficiency. One solution to this difficulty lies in the Victorian Energy Efficiency Target, South Australian Residential Energy Efficiency Scheme and the New South Wales Energy Savings Scheme.<sup>152</sup> An unambiguous target is at the centre of these schemes. The Victorian scheme creates a form of baseline and credit emissions trading with energy efficiency certificates for energy retailers. Such certificates are created by accredited persons who register activities such as changes in water heating, space heating, space conditioning, lighting, refrigerators or freezers.<sup>153</sup> The certificates are then surrendered for compliance. In South Australia, energy providers are obliged to meet individually set energy reduction targets including the delivery of energy audits to households on low-incomes.<sup>154</sup> In the New South Wales scheme, each certificate has the value of one tonne of carbon dioxide equivalent.<sup>155</sup> Again, the scheme is imposed on electricity retailers with a specified energy savings target.<sup>156</sup> The advantage of these market based schemes is that a clear target is set and that the private rather than the public sector is made to deliver the outcomes. The disadvantage is that such a system is awfully similar to emissions trading.<sup>157</sup> This duplication means that meticulous institutional design is required to ensure the market does not conflict with other goals.<sup>158</sup> Market-based energy efficiency is unlikely to work for New Zealand but New Zealand would do well to learn from the precision of the targets set by such schemes.

## G *Solar Energy*

Another method related to energy efficiency is solar energy use for hot water heating or for electricity via photovoltaic panels. Hot water heating uses the sun's rays to heat water which is subsequently stored in a tank. Photovoltaic cells use semiconductors to convert the sun's rays into electrical current. Currently in New Zealand, 1.6 per cent of homeowners have a solar water heating system.<sup>159</sup> Under the Building Code, Acceptable Solution G12/AS1 and AS2 deal with solar water heating to ensure that any solar water heater placed on a building is structurally stable and durable, resists external moisture entering the building, prevents injury from that hot water system and that such a system is positioned in an energy efficient roof location.<sup>160</sup> It is unfortunate that a large portion of any EECA funding granted is recanted with the council building consent fees despite council attempts to encourage solar water heating.<sup>161</sup> Nonetheless, the solar energy project of Maxim Projects, SolarCity and Meridian

<sup>152</sup> Victorian Energy Efficiency Target Act 2007 (Vic); Electricity (General) Regulations 1997 (SA), pt 2AA; Electricity Supply Act 1995 (NSW), pt 9.

<sup>153</sup> Durrant, above 146, at 144.

<sup>154</sup> At 144.

<sup>155</sup> At 145.

<sup>156</sup> Electricity Supply Act 1995 (NSW), ss 106-118.

<sup>157</sup> Kearney, above n 19, at 130.

<sup>158</sup> Garry, above n 125, at 270.

<sup>159</sup> Energy Efficient and Conservation Authority "Solar Energy" (2012) <[www.eeca.govt.nz](http://www.eeca.govt.nz)>.

<sup>160</sup> Department of Building and Housing "Solar Water Heaters – Guidance for Suppliers, Installers and Building Consent Authorities" (2012) <[www.dhb.govt.nz](http://www.dhb.govt.nz)>.

<sup>161</sup> Tal "Tried and True", above n 85, at 184.

Energy to build New Zealand's largest solar energy subdivision of 2,200 homes in Highfield after the Christchurch Earthquake is encouraging.<sup>162</sup> Each solar installation is designed to provide approximately a quarter of a typical home's energy needs.<sup>163</sup> This shows that the situation has improved immeasurably since Al Gore's famous experience where he was prohibited from installing solar panels on his home in Tennessee.<sup>164</sup>

For solar photovoltaics, New Zealand has not followed the feed-in tariffs of other countries despite calls for feed-in tariffs here.<sup>165</sup> The basic design of feed-in tariff is to allow distributed renewable generators and utility operators to share electricity, for the utility operator to receive electricity in priority to non-renewable generation and a guaranteed tariff to be paid to the generator.<sup>166</sup> However, there are a variety of different types of feed-in-tariffs available and feed-in tariffs are not limited to solar photovoltaics. New Zealand has not taken up feed-in tariffs because "New Zealand lacks natural conditions for optimal solar electrical generation" and solar photovoltaics will "produce a trivial percentage of national electricity."<sup>167</sup> New Zealand does, nonetheless, connect distribution generation to the electricity network. Internationally, Germany and Spain have been the leaders.<sup>168</sup> The United Kingdom has a feed-in tariff under the Energy Act 2008<sup>169</sup> and Ontario in Canada has a feed-in tariff with the passing of the Green Energy and Green Economy Act 2009.<sup>170</sup> In 2009, more than 18 States in the United States were engaged in comprehensive discussions as to legislative or regulatory feed-in tariffs.<sup>171</sup> In Australia, ACT has the Electricity Feed-In (Renewable Energy Premium) Act 2008 and South Australia has the Electricity (Feed-In Scheme – Solar Systems) Amendment Act 2008.<sup>172</sup> Other states and territories have a type of feed-in tariff in place.<sup>173</sup> A key difference between the Australian programmes is the payment of the tariff based on net metering or gross metering.<sup>174</sup> Net metering is where electricity produced is used to supply the energy requirements of the renewable energy generator with any unused excess generation exported to the electricity network. Gross metering is where all electricity generated is exported and any consumption by the renewable energy generator has

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<sup>162</sup> Solar City "New Zealand's Largest Solar Subdivision to be Built in Canterbury" (2012) <<http://solarcity.co.nz>>.

<sup>163</sup> Solar City, above n 162.

<sup>164</sup> Sussman, above 143, at 29.

<sup>165</sup> David Grinlinton "Achieving Emissions Reduction and Renewable Energy Targets: The Case for "Feed-In-Tariffs"" (2009) 8 BRMB 68 at 72.

<sup>166</sup> At 71-72.

<sup>167</sup> Tal "Tried and True", above n 85, at 182-183.

<sup>168</sup> Grinlinton "Feed-In-Tariffs", above 165, at 72.

<sup>169</sup> Energy Act 2008 (UK).

<sup>170</sup> Green Energy and Green Economy Act SO 2009 c 12; See generally: Miguel Mendonca, David Jacobs and Benjamin Sovacool *Powering the Green Economy: The Feed-In Tariff Handbook* (Earthscan, London, 2009) at 87 and 91.

<sup>171</sup> At 94.

<sup>172</sup> At 97 and 99; Electricity Feed-In (Renewable Energy Premium) Act 2008 (ACT); Electricity (Feed-In Scheme – Solar Systems) Amendment Act 2008 (SA).

<sup>173</sup> At 97-102.

<sup>174</sup> New South Wales Government Trade and Investment "Small Scale Solar PV Generators: Fact Sheet" (2011) <[www.trade.nsw.gov.au/energy/sustainable/renewable/solar](http://www.trade.nsw.gov.au/energy/sustainable/renewable/solar)>.

to be paid separately. In the United Kingdom, the differences and difficulties in the returns of tariffs has already been subject to judicial review.<sup>175</sup>

## *H Transport*

Transport is the fastest growing sector of greenhouse gas emissions in New Zealand.<sup>176</sup> Any efficiency gain in transportation's internal combustion engine is critical.<sup>177</sup> In New Zealand, the Energy Efficiency (Vehicle Fuel Economy Labelling) Regulations 2007 means that all new cars and cars imported for sale in New Zealand must display information about the vehicle's fuel economy. This "fuelsaver information" details the vehicle make, model, as well as information on the vehicle's fuel economy displayed as cost per year, a rating out of six stars, and litres per 100 kilometres.<sup>178</sup> There is also a requirement for reference details.<sup>179</sup> A "fuel economy label" includes the "fuelsaver information" with the information printed in an authorised label.<sup>180</sup> This label is to be displayed on the vehicle or near the vehicle.<sup>181</sup> Land Transport Rule: Fuel Consumption Information 2008 provides for the process by which fuel consumption data is collected into a database.<sup>182</sup> Under Rule 2.1, for a vehicle to be certified for entry into service, fuel consumption information must be provided. With this information of vehicle purchasers, EECA and the New Zealand Transport Agency have created a website called Fuelsaver.<sup>183</sup> This helps current drivers to work out how much is currently spent on fuel and advises how to cut down fuel consumption.<sup>184</sup>

Specified vehicles are also subject to Land Transport Rule: Vehicle Exhaust Emissions 2007 which aims to improve air quality by reducing the level of harmful emissions from those vehicles. The Rule is designed to improve progressively emissions standards of vehicles in New Zealand by requiring imported vehicles to meet progressively tightening emissions standards. Existing vehicles are required to pass Warrant of Fitness and Certificate of Fitness inspections that aim to identify visibly excessive emissions from vehicles.<sup>185</sup> The International Energy Agency notes that the global light-duty vehicle fuel economy is led by countries such as India, Italy, France, Japan, Spain, Indonesia, Turkey, and Brazil with poor fuel economy in countries such as Australia, United States and Canada. Hence, although European cars have fuel economy far superior to Australian and American cars, the Trans-Tasman Mutual Recognition Act 1997 seems to restrict higher standards in New Zealand.<sup>186</sup>

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<sup>175</sup> *Secretary of State for Energy and Climate Change v Friends of the Earth* [2012] EWCA Civ 28.

<sup>176</sup> Tal "Tried and True", above n 85, at 187.

<sup>177</sup> At 187.

<sup>178</sup> Energy Efficiency (Vehicle Fuel Economy Labelling) Regulations 2007, reg 4.

<sup>179</sup> Energy Efficiency (Vehicle Fuel Economy Labelling) Regulations 2007, reg 4.

<sup>180</sup> Energy Efficiency (Vehicle Fuel Economy Labelling) Regulations 2007, reg 6(6).

<sup>181</sup> Energy Efficiency (Vehicle Fuel Economy Labelling) Regulations 2007, reg 6(5).

<sup>182</sup> Land Transport Rule: Fuel Consumption Information 2008

<sup>183</sup> New Zealand Transport Agency "fuelSaver.govt.nz" (2012) <www.fuelsaver.govt.nz>.

<sup>184</sup> New Zealand Transport Agency "Habits" (2012) <www.fuelsaver.govt.nz>.

<sup>185</sup> Land Transport Rule: Vehicle Exhaust Emissions 2007, preamble.

<sup>186</sup> Trans-Tasman Mutual Recognition Act 1997, s 10.

Tal's submission that "there is no reason why the increasingly efficient European performance levels cannot be imposed as import standards" can be answered with the retort that such a proposal will lead to a standoff with New Zealand's trading partners.<sup>187</sup> New Zealand needs to increase its standards in line with countries such as Japan without alienating Australian car manufacturers. The result is that "New Zealand's present legal framework regarding vehicle efficiency... is patently thin and weak"<sup>188</sup> and vehicle fuel economy labelling in New Zealand assumes greater importance in influencing consumer choice.

Demand side response to transport efficiency in New Zealand has a role to play. For transport there are transit lanes, congestion charges, carpool facilitation, bicycle lanes, limits on urban parking, and the use of buses and rail. New Zealand's road transport is regulated by the Land Transport Management Act 2003 that aims to achieve an integrated, safe, responsive, and sustainable land transport system.<sup>189</sup> Transit lanes are lanes for vehicles that generally require more than one person in that vehicle. These are created by the Land Transport (Road User) Rule 2004 as a "special vehicle lane" and are authorized by bylaws.<sup>190</sup> Under Rule 2.3, in order to drive in such a lane the driver must meet the sign's requirements for occupancy or otherwise will commit an offence.<sup>191</sup> These provisions are identical for bus lanes.<sup>192</sup> Provisions in the Rules also relate to cycle lanes and cycle paths.<sup>193</sup> Congestion charges are a possibility as a road toll to decrease vehicle use.<sup>194</sup> Congestion charges will only be politically palatable where money is spent efficiently to improve the current transport arrangements.<sup>195</sup> It should be noted here that electric vehicles are exempted from road user charges.<sup>196</sup> Limits on urban parking could be imposed using the RMA 1991. For public transport such as buses and rail the Public Transport Management Act 2008 is the principal legislation.<sup>197</sup> This Act amalgamates regional council, territorial authority, and New Zealand Transport Agency functions with strategies to address public transport. Controls can be placed on commercial operators of public transportation to require common signage, integrated technology and integrated ticket systems.<sup>198</sup> The Act empowers the setting of fares based on time, zone, travel mode, frequency and concessions.<sup>199</sup> Furthermore, the Act requires information gathering and allows extensive monitoring.<sup>200</sup>

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<sup>187</sup> Tal "Tried and True", above n 85, at 188.

<sup>188</sup> Tal, *Legal Strategies*, above n 88, at 149.

<sup>189</sup> At 118.

<sup>190</sup> See: Auckland City Council Traffic Bylaw 2006.

<sup>191</sup> Land Transport (Road User) Rule 2004, r 2.3.

<sup>192</sup> Land Transport (Road User) Rule 2004, r 2.3.

<sup>193</sup> Land Transport (Road User) Rule 2004, r 2.3 and r 11.1A.

<sup>194</sup> Land Transport Management Act 2003, s 46; Land Transport Management (Road Tolling Scheme for ALPURT B2) Order 2005.

<sup>195</sup> Tal "Tried and True", above n 85, at 192.

<sup>196</sup> Road User Charges Regulations 1978, reg 3(1)(d); Road User Charges Act 2012, s 37.

<sup>197</sup> Public Transport Management Act 2008; See generally: Kenneth Palmer *Local Authorities Law in New Zealand* (Thomson Reuters, Wellington, 2012) at 715-721

<sup>198</sup> Public Transport Management Act 2008, s 10(2).

<sup>199</sup> Public Transport Management Act 2008, s 13.

<sup>200</sup> Public Transport Management Act 2008, ss 14 and 41.

### *III Conclusion*

New Zealand has “a strong statutory and institutional base”<sup>201</sup> for energy efficiency and conservation “encouraged and promoted by the use of education and financial incentives.”<sup>202</sup> This liberal approach attempts to break down the market barriers with the EECA but beyond its empowering statute the implementation of targets is confused. Improvements in energy efficiency and conservation are prioritised yet any evaluation of whether goals are achieved is absent. Nonetheless, these advancements in industry, business, transmission, distribution are to be welcomed. The introduction of energy efficient smart meters, appliances and light bulbs is a smart answer to curbing energy climbing consumption. Changes in the Building Code have produced warmer, healthier, more energy efficient homes with insulation, clean heating and efficient hot water systems. The energy efficiency of existing buildings is improving through financial incentives. Such incentives could be tightened with private enterprises or individuals rather than government departments fostering change like in Australia. Solar energy is progressively being adopted even though a fortified feed-in tariff law has been overlooked by the legislature. Fuel economy labelling for vehicles has a greater presence in New Zealand than emissions standards and a movement to further efficiency in transportation seems expected. Yet, financial incentives for energy efficiency and conservation alone may not be enough to reduce energy consumption from fossil fuels to combat climate change.

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<sup>201</sup> Tal “Tried and True”, above n 85, at 174.

<sup>202</sup> Ailsa Ceri Warnock “The Climate Change Regime: Efficacy, Compliance and Enforcement” (2004) 8 NZJEL 99 at 118.

## Chapter 8

### Sequestration

[C]arbon sequestration strategies can significantly reduce the level of [atmospheric greenhouse gases] and, in the case of [geo]sequestration, provid[e] an important option for continued reliance on [fossil] fuels

David Hayes and Joel Beauvais<sup>1</sup>

#### *I Introduction*

Carbon sequestration is one of the most controversial forms of greenhouse gas mitigation.<sup>2</sup> Carbon sequestration describes the process whereby greenhouse gases from the atmosphere are captured, stored and avoided. There are two main forms of sequestration: biosequestration and geosequestration. Biosequestration or bioenergy involves biological processes such as photosynthesis to capture and store carbon dioxide as carbon. Biosequestration will normally take the form of a solid such as vegetation like trees (biomass) but can be made into liquid (biofuels) or be decomposed into gas (biogas). Biosequestration can also take place with the manipulation of agricultural practices and the enhancement of soil quality. In a similar manner, geosequestration otherwise known as carbon capture and storage (CCS) captures greenhouse gases before release and permanently stores them in a geological reservoir. The reason sequestration is so controversial is that there are live problems as to permanence, leakage, additionality, measurement and verification.

As carbon sequestration is so divisive, the legislature has been slow to disaggregate carbon sequestration property law rights. The existing rights which do exist are awkward. For instance, New Zealand's legal framework for forestry is divided into four with Crown indigenous, private indigenous, Crown exotic, and private exotic each with its own statute and unique provisions. After the various mechanisms for forestry are analysed and carbon sequestration rights effected by way of biofuels or soil are discussed, this chapter submits that New Zealand perpetuates this incoherency by failing to disaggregate rights so that emissions

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<sup>1</sup> David Hayes and Joel Beauvais "Carbon Sequestration" in Michael Gerrard (ed) *Global Climate Change and US Law* (Chicago, American Bar Association, 2007) 691 at 691.

<sup>2</sup> At 692; Geoff Bertram and Simon Terry *The Carbon Challenge: New Zealand's Emissions Trading Scheme* (Bridget Williams Books, Wellington, 2010) at 45; Klaus Bosselmann "Achieving the Goal and Missing the Target: New Zealand's Implementation of the Kyoto Protocol" (2005) 2 Macquarie J Int'l & Comp Envtl L 75 at 96; Alexander Gillespie *Burning Issues: The Failure of the New Zealand Response to Climatic Change* (Dunmore Press, Palmerston North, 1997), ch 6. Alexander Gillespie "Burning Follies: The Creation and Failure of the New Zealand Response to Climate Change" (1997) 1 NZJEL 43 at 49; Alexander Gillespie "Defending the Irresponsible: A Reply to Chapman and Gray" (1998) 2 NZJEL 233 at 234; Alexander Gillespie "Sinks and the Climate Change Regime: The State of Play" (2003) DELPF 279 at 301; Michael Jeffrey "Carbon Capture and Storage: Wishful Thinking or a Meaningful Part of the Climate Change Solution" (2010) 27 (2) Pace Envtl L Rev 421 at 471; Marianna Parry "A Property Law Perspective on the Current Australian Carbon Sequestration Laws, and the Green Paper Model" (2010) 36 Monash U L Rev 321 at 329; Michelle Passero "The Nature of the Right or Interest Created by a Market for Forest Carbon" (2008) 3 CCLR 248 at 249; Ailsa Ceri Warnock "The Climate Change Regime: Efficacy, Compliance and Enforcement" (2004) 8 NZJEL 99 at 118.

units can be traded freely. Australia, by contrast, is far more advanced. Such legislative incoherency is particularly applicable to geosequestration. Legally, the capture, transportation, injection and storage of greenhouse gases such as carbon dioxide is both uncertain and inequitable. Legislative clarification of all of these carbon sequestration legal rights would simplify the process when agriculture participants finally enter the NZETS.

## *II Forestry*

It is projected that over the first commitment period of the Kyoto Protocol (2008 – 2012) New Zealand forestry will offset about 27 per cent of New Zealand's total greenhouse gas emissions as at 1990.<sup>3</sup> This offset refers to the process of carbon sinks which "sequester (suck up) [greenhouse gases] from the atmosphere and store it."<sup>4</sup> Thus, any emissions trading scheme in New Zealand without forestry would have been labelled as ineffective, inefficient and inequitable.<sup>5</sup> Lough and Cameron argue that given the contribution that such activities make to New Zealand's greenhouse gas emissions profile, any incentives to reduce emissions and enhance sinks are crucial.<sup>6</sup> The inclusion of forestry is, moreover, economically efficient.<sup>7</sup> It would have been inequitable for the Crown to retain the benefits of forestry while imposing burdens across the entire economy.<sup>8</sup> In this respect, putting forestry into the NZETS has been labelled "globally unique"<sup>9</sup> and "trailblazing."<sup>10</sup>

The reason that sequestration is so controversial is that there are risks of impermanence, leakage, additionality as well as the imposition of monitoring and verification requirements. In order to explain these sequestration terms a useful analogy is trees. Trees lack permanence because although trees may sequester carbon, trees can be cut down and be burnt so that there is no overall benefit to the atmosphere only the creation of delay. There is also the possibility of carbon leakage where tree sequestration in one area may lead to trees being cut down elsewhere to enable land to be used for food or grazing with no atmospheric benefit. The planting of trees should be additional to the status quo. This means that if trees are planted for erosion or biodiversity purposes, there is no need for any additional financial

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<sup>3</sup> Peter Lough and Alastair Cameron "Forestry in the New Zealand Emissions Trading Scheme: Design and Prospects for Success" (2008) 3 CCLR 281 at 283.

<sup>4</sup> Gillespie "Sinks", above n 2, at 279.

<sup>5</sup> Laura Cooper and Lisa Daniell "Forestry Sector" in Karen Price and others *Emissions Trading Scheme* (New Zealand Law Society, Wellington, 2011) 11 at 11; Lough and Cameron, above n 3, at 282; Greg Milner-White "The Legal Implications of Climate Change for Forestry in New Zealand" (2007) 11 NZJEL 141 at 171; Karen Price "Forestry" in Karen Price and others *The Emissions Trading Scheme – Advising Your Client on Their Obligations* (New Zealand Law Society, Wellington, 2010) 31 at 31; Vernon Rive "New Zealand Climate Change Regulation" in Alastair Cameron (ed) *Climate Change Law and Policy in New Zealand* (Lexis Nexis, Wellington, 2011) 165 at 200.

<sup>6</sup> Lough and Cameron, above n 3, at 283.

<sup>7</sup> At 283.

<sup>8</sup> At 283.

<sup>9</sup> At 281.

<sup>10</sup> Toni Moyes "Greenhouse Gas Emissions Trading in New Zealand: Trailblazing Comprehensive Cap and Trade" (2008) 35 Ecology LQ 911 at 911.

incentives because the sequestration would have occurred anyway. Additionally, there is a need for careful measurement and verification of the carbon sequestered because if the carbon stored in trees is estimated, there can be disparities between estimates and actual measurements. These problems can be applied universally to all forms of sequestration. For forestry these matters have been factored into the NZETS.<sup>11</sup>

#### A *Forestry in the NZETS*

Rules known as “land use, land use change, and forestry” (LULUCF) in Article 3.3 of the Kyoto Protocol allow for offsetting of the greenhouse gas emissions profile.<sup>12</sup> As reflected in the NZETS, a baseline is set up with forestry being divided between that grown pre-1990 and post-1989. This ensures that trees grown post-1989 are additional to trees grown pre-1990. As a general rule if forestry grown pre-1990 is deforested, a party (or participant under the NZETS) must account for the carbon lost by the transfer of equivalent emissions units. In this context, deforestation means the direct human-induced conversion of forested land to non-forested land;<sup>13</sup> afforestation means the direct human-induced conversion of land that has not been forested for a period of at least 50 years to forested land;<sup>14</sup> and reforestation is the direct human-induced conversion of non-forested land to forested land on land that was forested but has been converted to non-forested land (in essence, replanting).<sup>15</sup> Hence, pre-1990 forests are essentially treated as a deforestation liability as no emissions units are available for increases in carbon stored.<sup>16</sup> If forestry is grown post-1989, the party or participant is rewarded over time with emissions units for the carbon stored in the forest except if carbon is released liability for the emissions units will accordingly accrue. Central is the definition of forest land in the CCRA 2002:<sup>17</sup>

forest land –

- (a) means an area of land of at least 1 hectare that has, or is likely to have, tree crown cover from forest species of more than 30 [per cent] in each hectare; and
- (b) includes an area of land that temporarily does not meet the[se] requirements... but [the land] is likely to revert to land that meets the[se] requirements... but
- (c) does not include [tree crown cover of an average width of less than 30 metres]

As such, the legislative provisions in the CCRA 2002 relating to forestry are detailed and complicated due to a number of explicit exceptions.<sup>18</sup> For instance, forest species are

<sup>11</sup> Lough and Cameron, above n 3, at 281.

<sup>12</sup> Kyoto Protocol 1998, art 3(3).

<sup>13</sup> United Nations Framework Convention on Climate Change “Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its First Session, held at Montreal” 28 November - 10 December 2005, Decision 16/CMP1 (FCCC/KP/CMP/8/Add3, 30 March 2006) <<http://unfccc.int>> at 5.

<sup>14</sup> At 5.

<sup>15</sup> At 5.

<sup>16</sup> Derek Nolan (ed) *Environmental and Resource Management Law* (4<sup>th</sup> ed, LexisNexis, Wellington, 2011) at 1060.

<sup>17</sup> CCRA 2002, s 4(1), definition of “forest land”.

<sup>18</sup> Alastair Cameron (ed) *Climate Change Law and Policy in New Zealand* (LexisNexis NZ, Wellington, 2011) at 306.



defined as a tree species capable of reaching at least 5 metres in height at maturity but does not include tree species grown or managed primarily for the production of fruit or nut crops.<sup>19</sup> If the pre-1990 forest owner deforests less than two hectares in five years, deforestation liability will not accrue.<sup>20</sup> A differentiation is also made between indigenous trees and exotic forestry with the former only applying to post-1989 forestry and not pre-1990 forestry.<sup>21</sup> Importantly, post-1989 forestry is not required (unlike deforestation of pre-1990 forests) to become participants in the NZETS. Even though deforestation may occur for post-1989 trees, if a forest owner is not a participant, no emissions units would have been collected and therefore none would be due.<sup>22</sup> The inequity for pre-1990 forest owners is remedied by the allocation of emissions units free of charge to pre-1990 forests in accordance with the Pre-1990 Forest Land Allocation Plan which aim to compensate for land devaluation.<sup>23</sup> In addition, forest owners who owned less than 50 hectares of pre-1990 forest land were eligible for an exemption from deforestation liabilities but applications are now closed.<sup>24</sup> Applications for the associated tree weed deforestation exemption are also now closed.<sup>25</sup>

## *B Indigenous Forestry: Forests Act 1949*

Instead of the CCRA 2002, pre-1990 indigenous forestry is regulated by the principle of sustainable management in the 1993 amendments to the Forest Act 1949. The amendments call for sustainable forest management to maintain “the ability of the forest growing on that land to continue to provide a full range of products and amenities in perpetuity while retaining the forest’s natural values.”<sup>26</sup> The presumption is that no privately owned indigenous timber may be milled or exported unless harvested under a sustainable forest management plan or permit.<sup>27</sup> In order to mill an indigenous forest, the owner may apply for approval a draft sustainable forest management plan.<sup>28</sup> The Crown will consult with relevant parties and if approved such a plan will run with the land.<sup>29</sup> A similar alternative procedure<sup>30</sup> is that the owner may apply for a sustainable forest management permit to allow harvesting and milling of indigenous timber. The difference between a plan and a permit is the length of term (50 years versus 10 years) which usually relies on the forest size (large versus small).<sup>31</sup> The permit is specific, detailing the quantity of timber that may be

<sup>19</sup> CCRA 2002, s 4(1), definition of “forest species”.

<sup>20</sup> CCRA 2002, sch 3, pt 1.

<sup>21</sup> CCRA 2002, s 4(1), definition of “indigenous forest species”, “exotic forest species”, “forest land”, “post-1989 forest land” and “pre-1990 forest land”.

<sup>22</sup> CCRA 2002, s 190.

<sup>23</sup> Climate Change (Pre-1990 Forest Land Allocation Plan) Order 2010; See generally Chye-Ching Huang “The Constitution and Takings of Private Property” (2011) 24 (4) NZULR 621 at 630.

<sup>24</sup> CCRA 2002, ss 168(1)(ca) and 183.

<sup>25</sup> CCRA 2002, s 184.

<sup>26</sup> Forests Act 1949 [FA 1949], s 2(1).

<sup>27</sup> FA 1949, ss 67C and 67D.

<sup>28</sup> FA 1949, s 67F.

<sup>29</sup> FA 1949, s 67K(6).

<sup>30</sup> FA 1949, s 67M(6)(a).

<sup>31</sup> FA 1949, ss 67M(2) and 67E(3).

harvested and milled. Such a permit will also run with the land.<sup>32</sup> In 2004, the Forests Act 1949 was extended controversially to include indigenous forestry granted to Maori under the South Island Landless Natives Act 1906.<sup>33</sup> Crown owned indigenous forestry itself, of course, is governed by the Conservation Act 1987. Perhaps most importantly, the provisions in the Forests Act 1949 do not derogate from RMA 1991 requirements as the provisions have “a thrust different from, and [operate] outside of, the RMA [1991]” and supplementary resource consents may be required.<sup>34</sup> A proposal to selectively log an indigenous forest, therefore, was accepted to fund a pest management programme.<sup>35</sup>

### C Crown Owned Exotic Forestry: Crown Forestry Assets Act 1989

Crown owned exotic forestry, by contrast, is governed by the Crown Forestry Assets Act 1989. Under that Act, responsible Ministers have limited powers to deal with Crown forest land. The Act recognises that Crown alienation will prevent any return of land to Maori as part of the Treaty of Waitangi settlement process. The Court of Appeal has held that any such alienation of forestry lands could potentially be in breach of the Treaty.<sup>36</sup> With a Crown forestry licence, however, a transfer of standing exotic forestry can take place.<sup>37</sup> Crown forestry licences are binding on successors in title to the Crown but such a crown forestry licence does not confer on a licensee any estate or interest in that land.<sup>38</sup> Section 13 provides that Crown forestry assets “growing or standing on, or fixed to, or under or over, any land may be transferred... notwithstanding that neither the land nor any interest in land is being transferred.”<sup>39</sup> In this respect “the assets and the land shall be regarded as separate assets each capable of separate ownership.”<sup>40</sup> If a final recommendation is made under the Treaty of Waitangi Act 1975 for the return of the licensed land to Maori ownership (with accompanying compensation),<sup>41</sup> the licensee will be given notice that the licence will be terminated in a lengthy specified period up to 70 years.<sup>42</sup> Compensation is payable as Crown forestry licences themselves require an annual market rate fee for the use of the licensed land.<sup>43</sup> Crown forestry land is at the centre of the Maori settlement process and its transfer to Maori has been litigated as to the extent of Maori rights<sup>44</sup> and the scope of Maori claimants.<sup>45</sup>

<sup>32</sup> FA 1949, s 67M(7).

<sup>33</sup> Forests Amendment Act 2004; Nicola Wheen “Foul Play? Government and the SILNA Forests” (2003) 6 NZJEL 279.

<sup>34</sup> *Royal Forest and Bird Protection Society v Gisborne District Council* ENC Wellington W026/2009, 7 April 2009 at [23].

<sup>35</sup> At [93].

<sup>36</sup> *New Zealand Maori Council v Attorney General* [1987] 1 NZLR 641 (CA); *New Zealand Maori Council v Attorney-General* [1989] 2 NZLR 142 (CA).

<sup>37</sup> Crown Forests Assets Act 1989 [CFAA 1989], s 11(2).

<sup>38</sup> CFAA 1989, ss 15-16.

<sup>39</sup> CFAA 1989, s 13.

<sup>40</sup> CFAA 1989, s 13.

<sup>41</sup> CFAA 1989, s 36 and sch 1.

<sup>42</sup> CFAA 1989, s 17; *Laws of New Zealand Forestry* (online ed) at [77].

<sup>43</sup> CFAA 1989, s 29.

<sup>44</sup> *KTI v Attorney General* CA 188/04, 17 May 2006.

<sup>45</sup> *Haronga v Waitangi Tribunal* [2011] NZSC 53.

It has also been argued that due to the extensive crown forest land holdings when land is returned, Maori are being penalised under the CCRA 2002 for deforestation.<sup>46</sup> This has resulted in free allocation of emissions units.<sup>47</sup> In this light, the NZETS recognises the Crown responsibility to give effect to the principles of the Treaty.<sup>48</sup>

#### *D Privately Owned Exotic Forestry: Forestry Rights Registration Act 1983*

The last category, private land with mainly exotic forestry, uses conventional property law mechanisms to define legal rights. There are three typical ways of growing such trees to gain the protection of the registration provisions of Land Transfer Act 1952. The first method is that a person who owns the fee simple title to land may cut trees as owner of that land. Trees, as a fixture, form part of the land.<sup>49</sup> An alternative method is that a person may cut the trees under a lease agreement with the land owner. If there is a forestry lease, a right to cut is through the creation of tenants' fixtures.<sup>50</sup> Rent may be paid annually or as a share of the stumpage when the forest is harvested.<sup>51</sup> If the lease is not specific as to ownership of the trees, the lessee may be liable to the landowner under the law of waste if the trees are cut.<sup>52</sup> The principal problem with a lease is that if the lease is of an area less than the total area in the title and the term of 20 years or more, such a lease could be deemed a subdivision under the RMA 1991 which may require a resource consent.<sup>53</sup> The third method is that there may be a profit à prendre to cut the trees. The profit à prendre may be granted in an ordinary contractual form or in accordance with the forestry right provisions of the Forestry Rights Registration Act 1983. The benefit of a forestry right is the creation of rights to "establish, maintain and harvest" trees whereas in the profit à prendre's ordinary form, there cannot be the establishment of the trees but only the grant of harvesting rights.<sup>54</sup> Another problem with the ordinary form is provisions of the Sale of Goods Act 1908 whereby "goods" include things that are part of the land but are to be severed under a contract for sale.<sup>55</sup> This means that if an ordinary profit à prendre contained an obligation to cut timber then this is held to be a species of timber cutting right contract subject to the Sale of Goods Act 1908.<sup>56</sup> The forestry right (deemed to be a profit à prendre)<sup>57</sup> avoids these difficulties through legislative amendment while including ancillary rights such as access as well as construction rights

<sup>46</sup> Joshua Williams "Land Use for Pre-1990 Forestry: Who Bears the Cost of the New Zealand Emissions Trading Scheme?" (LLB(Hons) Dissertation, University of Otago, 2008) at 23.

<sup>47</sup> Climate Change (Pre-1990 Forest Land Allocation Plan) Order 2010, sch 1, cl 3(1).

<sup>48</sup> CCRA 2002, s 3A.

<sup>49</sup> Land Transfer Act 1952, s 2, definition of "land".

<sup>50</sup> Tom Bennion and others *New Zealand Land Law* (2<sup>nd</sup> ed, Brookers, Wellington, 2009) at 591.

<sup>51</sup> *Laws of New Zealand Forestry* (online ed) at [8].

<sup>52</sup> George Hinde and others *Hinde McMorland & Sim Land Law in New Zealand* (online looseleaf ed, LexisNexis NZ) at [11.098].

<sup>53</sup> RMA 1991, s 218.

<sup>54</sup> *Laws of New Zealand Forestry*, above n 51, at [9].

<sup>55</sup> *Waimiha Sawmilling v How* [1920] NZLR 681 (SC and CA); *Macklow Bros v Frear* (1913) 33 NZLR 264 (SC); *Hira Te Akau v Pukeweka Sawmills Ltd* [1924] NZLR 615 (SC); *Bray v Anderson* [1956] NZLR 347 (SC)

<sup>56</sup> *Laws of New Zealand Forestry*, above n 51, at [9].

<sup>57</sup> Forestry Rights Registration Act 1983, s 3.

necessary for the exercise of the forestry right.<sup>58</sup> A forestry right also has the advantage of not requiring a full survey as boundaries may be referred to in a diagram or aerial photograph.<sup>59</sup>

#### *E Ministry of Agriculture and Forestry Afforestation Schemes*

The Permanent Forest Sink Initiative (PFSI), Afforestation Grant Scheme (AGS), East Coast Forestry Project (ECFP), and the Sustainable Land Management (Hill Country Erosion) Programme (HCEP) are all current projects designed to encourage tree planting.<sup>60</sup> Under the Forests Act 1949, the PFSI is designed to facilitate permanent afforestation requiring registerable covenants which run with the land.<sup>61</sup> Harvesting may not take place for the restricted period of 99 years unless the harvesting is consistent with approved harvesting practice.<sup>62</sup> The landowner will receive emissions units for “the net increase in carbon stock by the forest sink area” which during the first commitment period under the Kyoto Protocol (2008-2012) will be Assigned Amount Units (AAUs).<sup>63</sup> If there is a net decrease, the landowner becomes liable for the loss of carbon stock.<sup>64</sup> The AGS involves grants for the establishment of forests but there are no rights to emissions units because there are no obligations for deforestation. A 10 year Crown agreement is entered into and there is an undertaking not to harvest the land within the term of the agreement, to take reasonable precautions against damage, to remedy any damage and allow monitoring as well as reporting access. The scheme is intended for small forest owners who do not wish onerous obligations. Any rights seem solely contractual. The HCEP works in a similar manner to the AGS for the avoidance of soil erosion outside of the ECFP. The ECFP is a contestable fund where landowners enter 50 year covenants to maintain forest cover on the ground land to prevent soil erosion.<sup>65</sup> Such covenants are either ECFP covenants,<sup>66</sup> QEII covenants<sup>67</sup> or Nga Whenua Rahui Kawenata covenants.<sup>68</sup> Conservation covenants could also be available.<sup>69</sup>

#### *F Alternative Legal Mechanisms*

Other less effective legal mechanisms to grow trees exist such as a contract, covenant, licence coupled with an interest, easement, encumbrance and caveat. A thorough, firm and

<sup>58</sup> Forestry Rights Registration Act 1983, s 2A(1)(d).

<sup>59</sup> Forestry Rights Registration Act 1983, s 5(1).

<sup>60</sup> Ministry of Agriculture and Forestry “Review of MAF Afforestation Grant Schemes” (2011) <www.maf.govt.nz> at 7.

<sup>61</sup> Forests Act 1949, s 67ZD(5)(b).

<sup>62</sup> Forest (Permanent Forest Sink) Regulations 2007, reg 4 and 7.

<sup>63</sup> Forest (Permanent Forest Sink) Regulations 2007, reg 10 and 11.

<sup>64</sup> Forest (Permanent Forest Sink) Regulations 2007, reg 9.

<sup>65</sup> Forestry (East Coast) Grant Regulations 2000, reg 13 (4).

<sup>66</sup> Forestry (East Coast) Grant Regulations 1992; Forestry (East Coast) Grant Regulations 2000; Ministry of Agriculture and Forestry “East Coast Forestry Project Grant Guidelines” (2007) <www.maf.govt.nz>.

<sup>67</sup> Queen Elizabeth the Second National Trust Act 1977, s 22(6); See generally Debra Donahue “The Law and Practice of Open Space Covenants” [2003] 7 NZJEL 119; Kellie Ewing “Conservation Covenants and Community Conservation Groups: Improving the Protection of Private Land” [2008] 12 NZJEL 315.

<sup>68</sup> Conservation Act 1987, s 27A; Reserves Act 1977, s 77A.

<sup>69</sup> Conservation Act 1987, s 27; Reserves Act 1977, s 77.

detailed analysis of these mechanisms is beyond the purview of this thesis as this is a particularly complex area of law. Another author will need to attend to such a task. Here, nonetheless, it must be emphasised that these other legal mechanisms are “not [as] simple and transparent” as a legislative right.<sup>70</sup> Such mechanisms will need meticulous legal drafting. It is appropriate to tabulate and summarise the problems associated with each mechanism:

Contract	A mere contractual right will not survive the indefeasibility of the Land Transfer Act 1952. <sup>71</sup>
Covenant	A covenant requires that there is land which is benefited and land which is burdened by the covenant. <sup>72</sup> Whether a covenant creates a caveatable interest in land depends upon whether the view is taken that the particular covenant is an equitable interest <sup>73</sup> (such as exclusive occupation). <sup>74</sup> If a covenant is to burden land with no benefit to accrue to other land, it is known as being “in gross.” <sup>75</sup> The Law Commission states that “covenants in gross cannot run with the land.” <sup>76</sup> It recommends legislative amendment should enable covenants in gross to run with land which would overcome this problem. <sup>77</sup>
Forestry Supply Contracts	In provisions of the Forests Act 1949 not currently in force, registered forestry supply contracts are deemed to be a covenant running with the land. <sup>78</sup> If available, these would avoid the aforementioned difficulties.
A Licence coupled with an Interest	Difficult issues are also raised by a licence coupled with an interest. In short, if the equitable doctrine of proprietary estoppel is tied to a licence, an interest in land capable of supporting a caveat will be present. <sup>79</sup>
Easement	Easements like covenants traditionally require two parcels of land. <sup>80</sup> Although the creation of an easement in gross does run with the land <sup>81</sup> and carbon sequestration provisions can be drafted like those for communal gardens, <sup>82</sup> an easement of unlimited storage within a confined space has been held unable to exist because such a claim amounts to joint exclusive

<sup>70</sup> Baker & McKenzie and Buddle Findlay “Mechanisms for Recognising Rights to Carbon Sequestered by Land-Based Activities in New Zealand” (2008) Ministry of Agriculture and Forestry <www.maf.govt.nz> at 12.

<sup>71</sup> Bennion, above n 50, at 283.

<sup>72</sup> At 901; See Property Law Act 2007, s 307.

<sup>73</sup> *Composite Buyers Ltd v Soong* (1995) 38 NSWLR 286 (SC) at 288.

<sup>74</sup> *Enjoin Twenty Four Ltd v Van Tilbory* (1991) 1 NZ ConvC 190,989 (HC) at 190,998.

<sup>75</sup> Law Commission *A New Land Transfer Act* (NZLC R116) at [7.4].

<sup>76</sup> At [7.4]; See *ANZCO Foods Waitara Ltd v AFFCO New Zealand Ltd* [2006] 3 NZLR 351 (CA) at [76]; *Bezett v Aspen Grove Ltd* (2005) 6 NZCPR 753 (HC) at [31]; Property Law Act 2007, s 306(b); Hinde, above n 52, at [17.040]; Bennion, above n 50, at 901.

<sup>77</sup> Law Commission, above n 75, at [7.58].

<sup>78</sup> FA 1949, ss 68A-68C; Forests Amendment Act 1996, s 2.

<sup>79</sup> Bennion, above n 50, at 461-462 and 492; *Allen v Hogan Developments Ltd* (2001) 4 NZ ConvC 193,420 (HC) at 193,428.

<sup>80</sup> *Re Ellenborough Park* [1955] 3 All ER 667 (CA) at 673.

<sup>81</sup> Property Law Act 2007, s 291.

<sup>82</sup> *Mulvaney v Gough* [2002] EWCA Civ 1078.

	occupation. <sup>83</sup> If worded defectively such as a prohibition on cutting down trees “the law has been... chary of creating any new negative easements.” <sup>84</sup>
Encumbrance	An encumbrance is an inelegant mechanism for all sorts of desired obligations by way of a mortgage. These obligations can be achieved using an infinitesimal annuity or rentcharge payable to the landowner. <sup>85</sup> In 2010, the Law Commission recommended that legislative amendment should prevent the registration of encumbrances for collateral purposes and instead covenants in gross should be made to run with the land. <sup>86</sup>
Caveat	A caveat allows any person entitled to or beneficially interested in land to prevent dealings of the land in question. <sup>87</sup> On the one hand if an emissions unit is likened to a profit à prendre, easement or a covenant / licence supported by equity, a caveat will be supported. <sup>88</sup> This would ensure the “environmental benefit” of any carbon sequestration right is upheld. <sup>89</sup> On the other, mere contractual rights will not support a caveat. As described above, for specified purposes an NZU is an “unsecured debt”, <sup>90</sup> a “financial instrument” <sup>91</sup> and an “investment security.” <sup>92</sup> It is well established that shares and unsecured debts will not support a caveat. <sup>93</sup> The numerus clausus principle described above limits the creation of new proprietary rights. Applying this principle, damages could be suitable which would prevent any proprietary remedy. <sup>94</sup> Obviously, both interpretations have merit.

## G Australian Carbon Sequestration Rights

New Zealand would do well to learn from Australian states that have legislated for a disaggregated carbon sequestration right.<sup>95</sup> New South Wales, Tasmania, and Queensland define the carbon sequestration right as a profit à prendre. The New South Wales definition

<sup>83</sup> *Grigsby v Melville* [1973] 1 All ER 385 (Ch) at 392; *Batchelor v Marlow* [2001] EWCA Civ 1051; *Copeland v Greenhalf* [1952] 1 All ER 809 (Ch); *Pitman v Nickerson* (1891) 40 NSR 20 (SC); Bennion, above n 50, at 856-857; Hinde, above n 52, at [16.006(c)].

<sup>84</sup> *Phipps v Pears* [1964] 1 AC 76 (QB) at 83; Parry, above n 2, at 348.

<sup>85</sup> Hinde, above n 52, at [15.163]; *Menere v Jackson Mews Management Ltd* [2010] 2 NZLR 347 (SC).

<sup>86</sup> Law Commission, above n 75, at [7.61].

<sup>87</sup> Land Transfer Act 1952, s 137(1).

<sup>88</sup> Bennion, above n 50, at 279; For a profit à prendre: *Ellison Ellison v Vukicevic* (1986) 7 NSWLR 104 (SC); *Permanent Trustee Australia Ltd v Shand* (1992) 27 NSWLR 426 (SC); For easements: *North Shore City Council v Bungalo Holdings* HC Auckland M920/IM00, 18 August 2000 at [20]; For a licence: *Allen v Hogan Developments Ltd* (2001) 4 NZ ConvC 193,420 (HC) at 193,428; For a covenant: *Enjoin Twenty Four Ltd v Van Tilbory* (1991) 1 NZ ConvC 190,989 (HC) at 190,998.

<sup>89</sup> PPSA 1999, s 16, definition of “emissions units”; SA 1978, s 2; SMA 1988, s 37.

<sup>90</sup> CCRA 2002, s 159(3).

<sup>91</sup> SMA 1988, s 37, definition of “commodity”.

<sup>92</sup> PPSA 1999, s 16, definition of “investment security”.

<sup>93</sup> Bennion, above n 50, at 285; For unsecured debt: *Holt v Anchorage Management Ltd* [1987] 1 NZLR 108 (CA) at 117; For shares: *Waiteitei Angora Farm v Cann* HC Auckland M647/98, 17 April 1989 at 12.

<sup>94</sup> *Keppell v Bailey* (1834) 39 ER 1042 (Ch) at 1049.

<sup>95</sup> Conveyancing Act 1919 (NSW), s 87A; Forestry Rights Registration Act 1990 (Tas), s 3; Forestry Act 1959 (Qld), s 61J; Forestry Property Act 2003 (SA), s 3A(1); Carbon Rights Act 2003 (WA), ss 3 and 6(1)(a); Climate Change Act 2010 (Vic), s 22.

explains that the profit from the land is the rights to carbon sequestration created by any existing or future tree on the land.<sup>96</sup> This reclassification of a profit à prendre has been subject to criticism as sequestration conceptually involves storing carbon on the land rather than taking something amorphous (a carbon sequestration right) from the land.<sup>97</sup> Hence, the equitable profit à rendre has been proffered as more accurate.<sup>98</sup> South Australia creates a chose in action whereby ownership of the carbon is presumptively deemed to be in the holder of the owner of the vegetation until separated by a forest property agreement such as a carbon rights agreement. Such an agreement when registered will bind successors in title to the land.<sup>99</sup> On the other hand, Western Australia creates a carbon right as a separate interest in land defined as a hereditament and encumbrance.<sup>100</sup> To ensure access and monitoring, covenants can provide for such rights to be attached to the carbon right to run with the land.<sup>101</sup> Victoria, conversely, creates a sui generis “forest carbon right” which is a collective term to describe a “carbon sequestration right”, “forestry right” and “soil carbon right.”<sup>102</sup> These are all interests in land.<sup>103</sup> Helpfully, a Forestry and Carbon Management Agreement allows for access and monitoring while allowing the agreement to be recorded on the title although not registered.<sup>104</sup> For present purposes, all these provisions disaggregate a carbon right conceptually distinct from a forestry right and all construct an interest capable of binding successors in title. A disaggregated carbon sequestration right can avoid a tragedy of the anti-commons when the legislature has clarified the content of the property rights.

#### *H National Environmental Standard for Plantation Forestry*

Forestry has also faced inconsistent RMA 1991 regulation which has inhibited the potential of sequestration to reduce greenhouse gas emissions. The problem is highlighted by forestry company PF Olsen’s Ltd who deal with 12 regional, 3 unitary and 41 district bodies who each have different rules as to forestry activities.<sup>105</sup> Such problems are exemplified by re-litigation of the same issues across the country: forestry crossing many boundaries, duplication of functions, and inconsistent regulation compared to similar land uses such as

<sup>96</sup> Conveyancing Act 1919 (NSW), s 87A.

<sup>97</sup> Katrina Cuskelly “Legal Frameworks for Regulating Biosequestration in Australia” (2011) 28 EPLJ 348 at 355; Samantha Hepburn “Carbon Rights as New Property: The Benefits of Statutory Verification” (2009) 31 Sydney LR 239 at 242; Steven Kennett, Arlene Kwasniak and Alastair Lucas “Property Rights and the Legal Framework for Carbon Sequestration on Agricultural Land” (2005) 37 Ottawa L Rev 171 at 197; Parry, above n 2, at 337.

<sup>98</sup> Hepburn, above n 97, at 243; See generally: *Clos Farming Estates v Easton* [2002] NSWCA 389 at [60]; Peter Butt *Land Law* (6<sup>th</sup> ed, Thomson Reuters, Sydney, 2010) at 513; Brendan Edgeworth “Profits a Rendre: A Reincarnation?” (2006) 12 APLJ 200.

<sup>99</sup> Forestry Property Act 2003 (SA), s 9.

<sup>100</sup> Carbon Rights Act 2003 (WA), s 6(3).

<sup>101</sup> Cuskelly, above n 97, at 357.

<sup>102</sup> Climate Change Act 2010 (Vic), s 21.

<sup>103</sup> Climate Change Act 2010 (Vic), s 25.

<sup>104</sup> Climate Change Act 2010 (Vic), s 32.

<sup>105</sup> Ministry for the Environment “Proposed National Environmental Standard for Plantation Forestry: Discussion Document” (2010) <www.mfe.govt.nz> at 21.

agriculture.<sup>106</sup> A solution is the proposed National Environmental Standard for Plantation Forestry. Of course, forestry involves disturbance to water bodies for culverts, extensive earthworks including quarrying for roading, the creation of nuisances and can involve the destruction of ecosystems.<sup>107</sup> While these are proposed to be to an extent permitted activities in rural zones, activities affecting fire risk, flood hazards, geothermal or karst protection areas, heritage, indigenous forests, infrastructure, nationally significant water bodies, outstanding natural features or landscapes, the potential for wilding trees or water yield effects may require more stringent regulation in district and regional plans in certain circumstances.<sup>108</sup> The NES brings about welcome coherence avoiding council plan changes as well as avoiding submission, research, monitoring, enforcement and remediation costs for needless compliance.<sup>109</sup> It will increase investment certainty and facilitate efficient environmental outcomes.<sup>110</sup>

### *III Biosequestration / Bioenergy*

Sequestration by forestry reduces greenhouse gases as the carbon dioxide released is theoretically equal to the amount absorbed during biological growth. Bioenergy is a broader term to describe processes of sequestration and covers biomass (wood), biofuels (traditionally ethanol), and biogas (methane). Importantly, wood can be converted into other forms.<sup>111</sup> Wood's predominant use with respect to energy is burning for residential heating. Wood is also burnt for heat required during wood processing in New Zealand by Redstag Timber, Pan Pac Forest Products, Nelson Pine Industries, Juken Nissho, Carter Holt Harvey and Norske Skog.<sup>112</sup> Biogas usually comes from landfills. It is captured and combusted for electricity at Greenmount, Hampton Downs, Horotiu, Redvale, Rosedale, Silverstream, Southern and Whitford Landfills.<sup>113</sup> Biofuels in New Zealand take the form of biodiesel (tallow, canola, and used cooking oils) and bioethanol (whey ethanol) although sugarcane ethanol from Brazil is imported.<sup>114</sup> It is important to record that life cycle analysis has shown that all these forms of bioenergy can release additional greenhouse gases because of the use of fossil fuels during cultivation, production and transport as well as land use changes such as deforestation.<sup>115</sup> This applies especially to biofuels with leakage if forests are cut down for biofuel production or other crops such as food are forced to cut down such forests. This can be over and above

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<sup>106</sup> At 20-24.

<sup>107</sup> At 7.

<sup>108</sup> At 45.

<sup>109</sup> At 91.

<sup>110</sup> At 91.

<sup>111</sup> EECA Business "Wood Energy: Using Wood as a Renewable Energy Source" (2011) EECA EnergyWise <[www.energywise.govt.nz](http://www.energywise.govt.nz)> at 1.

<sup>112</sup> Bioenergy Association of New Zealand "Heat Plant in New Zealand: Heat Plant Sized Greater Than One Hundred Kilowatts Thermal Segmented by Industry Sector" (2008) <[www.bioenergy.org.nz](http://www.bioenergy.org.nz)> at 89-103.

<sup>113</sup> Electricity Authority "List of Generation Projects: Generating Stations List as at October 2011" (2011) <[www.ea.govt.nz](http://www.ea.govt.nz)>.

<sup>114</sup> Parliamentary Commissioner for the Environment *Some Biofuels are Better than Others: Thinking Strategically about Biofuels* (Wellington, 2010) at 27.

<sup>115</sup> At 18.



ploughing the land, fertilizer use, and extensive water use which all have the potential to increase greenhouse gas emissions overall. Biofuels raise other concerns too such as the “food-versus-fuel debate” where if a car owner fills up a 50 litre tank with maize produced biofuel (an inefficient biofuel) that maize would be enough to feed one person for a year.<sup>116</sup>

Against this background, the 2008 amendment to the Energy (Fuels, Levies, and References) Act 1989 which obliged fuel retailers to sell a proportion of liquid biofuels was subsequently repealed by the legislature.<sup>117</sup> The Sustainable Biofuel Bill 2009 has also languished.<sup>118</sup> The 2008 legislative requirement was that 0.5 per cent of biofuels were required to be in liquid fossil fuels sold domestically increasing to 2.5 per cent by 2012.<sup>119</sup> The select committee introduced sustainability criteria into the Act after concerns from the PCE that biofuels such as palm oil which can increase greenhouse gas emissions could be imported.<sup>120</sup> These criteria included principles that biofuels emit at least 35 per cent less greenhouse gas over their life cycle than fossil fuels, that biofuels do not compete with food production and that biofuels do not reduce indigenous biodiversity or adversely affect land with high conservation value.<sup>121</sup> As the PCE has stated these sustainability criteria are difficult to enforce.<sup>122</sup> The alternative, however, of letting the market decide could see the importation of unsustainable biofuels anyway. New Zealand does have an emerging biofuel market with the government’s non-legislative Biodiesel Grants Scheme which grants up to 42.5 cents per litre for specified biodiesel production that manufactured in New Zealand and is not exported.<sup>123</sup> In the United States,<sup>124</sup> Canada,<sup>125</sup> United Kingdom<sup>126</sup> and New South Wales in Australia<sup>127</sup> there are biofuel retailer legal obligations.

#### *IV Soil*

Another method of reducing greenhouse gas emissions is recognised under Article 3.4 of the Kyoto Protocol which provides for forest management, revegetation, cropland

<sup>116</sup> Nicola Colbran and Asbjørn Eide “Biofuel, the Environment, and Food Security: A Global Problem Explored Through a Case Study of Indonesia” (2008) 9 Sustainable Dev L & Pol’y 4 at 5; See generally: Frank Rosillo-Calle and Francis Johnson (ed) *Food versus Fuel: An Informed Introduction to Biofuels* (Zed, London, 2010).

<sup>117</sup> Energy (Fuels, Levies, and References) Biofuel Obligation Repeal Act 2008.

<sup>118</sup> Vernon Rive “New Zealand Climate Change Regulation” in Alastair Cameron (ed) *Climate Change Law and Policy in New Zealand* (Lexis Nexis, Wellington, 2011) 165 at 190.

<sup>119</sup> Energy (Fuels, Levies, and References) Amendment Act 2008, sch 1.

<sup>120</sup> PCE, *Biofuels*, above n 114, at 17; Kerry Puddle “Unilateral Trade Measures to Combat Climate Change: A Biofuels Case Study” (2007) 11 NZJEL 99.

<sup>121</sup> Energy (Fuels, Levies, and References) Amendment Act 2008, s 9.

<sup>122</sup> PCE, *Biofuels*, above n 114, at 19.

<sup>123</sup> Energy Efficiency and Conservation Authority “Biodiesel Grants Scheme” (2011) <www.eeca.govt.nz>.

<sup>124</sup> Energy Independence and Security Act of 2007 42 USC §17001; United States Environmental Protection Agency “Renewable Fuel Standard” (2011) <www.epa.gov>.

<sup>125</sup> Canadian Environmental Protection Act SC 1999 c 33, s 332(1); Environment Canada “Renewable Fuels Regulations” (2010) <www.ec.gc.ca>.

<sup>126</sup> Energy Act 2004 (UK), pt 2; United Kingdom Department of Transport “Renewable Transport Fuels Obligation” (2011) <www.dft.gov.uk>; Directive 2003/30/EC on the Promotion of the Use of Biofuels and Other Renewable Fuels for Transport [2003] OJ L 123/42.

<sup>127</sup> Biofuels Act 2007 (NSW).

management and grazing land management.<sup>128</sup> Forest management are practices designed to increase carbon sequestration of existing forests such as pest-control.<sup>129</sup> Revegetation is the reversion of pasture to unmanaged vegetation such as scrub which does not meet the definition of forest.<sup>130</sup> Cropland management is direct drilling of crops without ploughing and the use of harrows.<sup>131</sup> Tilling dries out soil resulting in carbon loss. The draining of wetlands, likewise, results in greenhouse gas emissions.<sup>132</sup> Grazing land management involves manipulating vegetation and livestock activities.<sup>133</sup> This can include fertilization and irrigation intensity. Under the Kyoto Protocol, New Zealand has elected not to account for carbon stock change for such activities.<sup>134</sup> These activities are left to the voluntary carbon market. It is observed above that New Zealand does not create a disaggregated carbon sequestration right and there are difficulties with the existing legal mechanisms. This is particularly so for soil sequestration.<sup>135</sup> It is conceivably because “USA grasslands... are far more degraded (in plant species content, productivity and soil status) than those [of] New Zealand.”<sup>136</sup> In this respect “[t]he heavy reliance of the New Zealand agricultural sector on livestock will tend to act as a drawback to a potential soil carbon offset programme. In general, there are fewer options to farmers with grazing lands (vs. cropland) to alter practices [to] increase [soil] carbon content.”<sup>137</sup> Soil offsets moreover pose implementation problems because of permanence, additionality, leakage, measurement, and verification.<sup>138</sup> The Chicago Climate Exchange has attempted to resolve these complications with detailed provisions for aggregators (essentially brokers), third party verification and a fund for soil carbon reversals.<sup>139</sup> In New Zealand although there is the theoretical potential for soil carbon offsets on the voluntary market, the current legal tools which ascribe soil carbon rights with land rights are inflexible. Advances in soil carbon science could well see biochar (charcoal)

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<sup>128</sup> Kyoto Protocol 1998, art 3(4).

<sup>129</sup> United Nations Framework Convention on Climate Change “Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its First Session, held at Montreal” 28 November - 10 December 2005, Decision 16/CMP1 (FCCC/KP/CMP/8/Add3, 30 March 2006) <<http://unfccc.int>> at 5.

<sup>130</sup> At 5.

<sup>131</sup> At 5.

<sup>132</sup> Hayes and Beauvais, above n 1, at 695.

<sup>133</sup> United Nations Framework Convention on Climate Change “Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its First Session, held at Montreal” 28 November - 10 December 2005, Decision 16/CMP1 (FCCC/KP/CMP/8/Add3, 30 March 2006) <<http://unfccc.int>> at 5.

<sup>134</sup> Baker & McKenzie and Buddle Findlay, above n 70, at 4.

<sup>135</sup> Land Transfer Act 1952, s 2; Kennett, above n 97, at 178-185.

<sup>136</sup> AgResearch “Soil Carbon and Pastoral Agriculture: Carbon Market Business Opportunities” (2009) Ministry of Agriculture and Forestry <[www.maf.govt.nz](http://www.maf.govt.nz)> at 11.

<sup>137</sup> ICF International “Final Report: Voluntary Carbon Market Opportunities – Soil Carbon Management in New Zealand” (2008) Ministry of Agriculture and Forestry <[www.maf.govt.nz](http://www.maf.govt.nz)> at 18.

<sup>138</sup> Robert Carpenter “Implementation of Biological Sequestration Offsets in a Carbon Reduction Policy: Answer to Key Questions for a Successful Domestic Offset Program” (2010) 31 Energy L J 157 at 166-181; Brant Leonard “Carbon Sequestration as Agriculture’s Newest Market: A Primer on Agriculture’s Role in Carbon Cap-And-Trade” (2010) 15 Drake J Agric L 317 at 326-334.

<sup>139</sup> Chicago Climate Exchange “Sustainably Managed Rangeland Soil Carbon Sequestration Offset Project Protocol” (2009) InterContinental Exchange <<https://www.theice.com>>.

added to New Zealand soils as a carbon sink while increasing soil fertility.<sup>140</sup> Despite such potential, there are numerous scientific obstacles to overcome and it is anticipated that a disaggregated soil carbon legal right will be reactive rather proactive.

### *V Geosequestration*

Geosequestration or carbon capture and storage (CCS) in simple terms is “the injection [of] a greenhouse gas... into an underground geological storage formation for the purpose of permanently storing that substance underground” to avoid that greenhouse gas from entering the atmosphere.<sup>141</sup> The whole process involves separation of the greenhouse gas from other gases at a discharge point, gas compression, transportation (via pipeline, ship, rail or road), injection into a storage reservoir and lastly monitoring of that storage reservoir.<sup>142</sup> There are different reservoirs such as deep saline aquifers, depleted oil and gas fields and unmineable coal seams.<sup>143</sup> Sequestration may also be able to take place in the ocean water column and mineral carbonates.<sup>144</sup> Relevantly, developments overseas have seen CCS flow from enhanced oil (and gas) recovery as well as acid gas disposal activities.<sup>145</sup>

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<sup>140</sup> Ministry of Agriculture and Forestry “Other Climate Change Initiatives” (2011) <www.maf.govt.nz>; See also: Darrell Fruth and Joseph Ponzi “Adjusting Carbon Management Policies to Encourage Renewable, Net-Netgative Projects such as Biochar Sequestration” (2010) 36(3) Wm Mitchell L Rev 992.

<sup>141</sup> Greenhouse Gas Geological Sequestration Act 2008 (Vic), s 5; See generally: Juliette Addison, John Bowman and Paul Watchman “Carbon Sequestration” in Paul Watchman (ed) *Climate Change: A Guide to Carbon Law and Practice* (Globe Business Publishing Ltd, London, 2008) 287; Nigel Bankes, Jenette Poschwatta and Mitchell Shier “The Legal Framework for Carbon Capture and Storage in Alberta” (2008) 45 (3) Alta L Rev 585; Victor Der “Carbon Capture and Storage: An Option for Helping to Meet Growing Global Energy Demand while Countering Climate Change (2010) 44 (3) U Rich L Rev 937; Trent Dougherty and others “Reconciling King Coal and Climate Change: A Regulatory Framework for Carbon Capture and Storage” (2009) 11(1) VJEL 1; Nicola Durrant *Legal Responses to Climate Change* (Federation Press, Sydney, 2010); Victor Platt “Paving the Legal Path for Carbon Sequestration from Coal” (2009) 19 (2) DELPF 211; David Hodgkinson and Renee Garner *Global Climate Change: Australian Law and Policy* (LexisNexis Butterworths, Chatswood, 2008); Nadine Hoffman “The Emergence of Carbon Sequestration: An Introduction and Annotated Bibliography of Legal Aspects of CCS” (2011) 29 (1) Pace Envtl L Rev 218; Thomas Kerr “Legal and Regulatory Developments: The Path Forward to Advance Carbon Dioxide Capture and Storage as a Climate Change Solution” (2007) 11/12 IELTR 232; David Dell “Climate Change and Property Law” in Dennis Mahony (ed) *The Law of Climate Change in Canada* (Canada Law Book, Toronto, 2010) ch 17; Jeffrey Moore “The Potential Law of On-Shore Geologic Sequestration of CO<sub>2</sub> Captured from Coal-Fired Power Plants” (2007) 28 (2) Energy L J 443; A M Warburton and others “Geosequestration Law in Australia” in Tim Bonyhady and Peter Christoff (ed) *Climate Law in Australia* (Sydney, Federation Press, 2007) 142; Brad Wylynko and Jessica Smith “Developing a Regulatory Regime for Carbon Geosequestration in Australia” in Wayne Gumley and Trevor Daya-Winterbottom (ed) *Climate Change Law* (Thompson Reuters, Sydney, 2009) 111.

<sup>142</sup> Joshua McGettigan “Burying Climate Change Underneath the Ground: A Carbon Capture and Storage Regulatory Framework for New Zealand” (LLB(Hons) Dissertation, University of Otago, 2009) at 6-8.

<sup>143</sup> At 9.

<sup>144</sup> At 9; See also: Karen Scott “The Day after Tomorrow: Ocean CO<sub>2</sub> Sequestration and the Future of Climate Change” (2005) 18 (1) Geo Int’l Envt’l L Rev 57.

<sup>145</sup> Barry Barton “Carbon Capture and Storage Law for New Zealand: A Comparative Study” (2009) 13 NZJEL 1 at 25; Philip Marston and Patricia Moore “From EOR to CCS: The Evolving Legal and Regulatory Framework for Carbon Capture and Storage” (2008) 29(2) Energy L J 421; David Schwartz “The Natural Gas Industry: Lessons for the Future of the Carbon Dioxide Capture and Storage Industry” (2008) 19 (3) Stanford L & Pol’y Rev 550.

In New Zealand, the NZCCS Partnership has taken the lead to better understand the technical, commercial, regulatory, legal, and social considerations requiring attention.<sup>146</sup> The Partnership states that although Marsden Point Oil Refinery, Kapuni Urea Plant and Kapuni Gas Treatment Plant already separate carbon dioxide from other gases, this is in small quantities and if the Huntly Power Station was to engage in post-combustion capture an extensive retrofit with chemical solvents would be required.<sup>147</sup> The Partnership describes that existing pipelines in New Zealand would not be suitable for high pressure carbon dioxide transport.<sup>148</sup> The Partnership explains that New Zealand already has an onshore underground storage of natural gas known as the Ahuroa Gas Storage Project and New Zealand has numerous developed and tested hydrocarbon reservoirs which could be suitable for CCS.<sup>149</sup> Importantly, the Partnership elucidate that “storage sites are not huge cavern but “solid rock” that act like a sponge”<sup>150</sup> and carbon dioxide “is not a gas at reservoir depth, but acts like a dense liquid.”<sup>151</sup> It is accepted that as New Zealand is tectonically active, faulting will limit potential sink formations.<sup>152</sup> Although promising and developing internationally, commentators advise that given the current status of the technology, implementation in New Zealand prior to 2020 is not feasible.<sup>153</sup>

#### *A Ownership of the Reservoir*

The first legal question for geosequestration is the ownership of the reservoir where the greenhouse gases are to be stored.<sup>154</sup> All of the New Zealand commentators in this area (Baker,<sup>155</sup> Barton,<sup>156</sup> McGettigan,<sup>157</sup> and Severinsen<sup>158</sup>) prima facie agree that neither the RMA 1991, nor the CMA 1991 to the extent applicable, clearly assign ownership of the

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<sup>146</sup> Chris Baker “CCS in New Zealand – Case Studies for Commercial Scale Plant Final Report” (2010) Coal Association of New Zealand <[www.cleancoal.org.nz](http://www.cleancoal.org.nz)> at 12.

<sup>147</sup> At 20.

<sup>148</sup> At 35.

<sup>149</sup> At 24.

<sup>150</sup> At 24.

<sup>151</sup> At 24.

<sup>152</sup> Barton, above n 145, at 4.

<sup>153</sup> Shannon Page, Ian Mason and Arthur Williamson “Carbon Capture and Storage: An Appropriate Technology for New Zealand?” (paper presented to the Sustainability Society Conference, Auckland New Zealand, 12 December 2008) at 7.

<sup>154</sup> Owen Anderson “Geologic CO<sub>2</sub> Sequestration: Who Owns the Pore Space?” (2009) 9 (1) Wyo L Rev 97; Ross Ashcroft “Carbon Capture and Storage: A Need for Re-Conceiving Property Interests and Resource Management in the Australian Legal System” (2008) Lawasia J 70; Dougherty, above n 141; Bryan Endres “Geologic Carbon Sequestration: Balancing Efficiency Concerns and Public Interest in Property Rights Allocations” (2011) U Ill L Rev 623; Blayne Grave “Carbon Capture and Storage in South Dakota: the Need for a Clear Designation of Pore Space Ownership” (2010) 55 (1) SD L Rev 72; Tracy Logan “Carbon Down Under – Lessons From Australia: Two Recommendations for Clarifying Subsurface Property Rights to Facilitate Onshore Geologic Carbon Sequestration in the United States” (2010) 11(2) San Diego Int’l L J 561; John Sprankling “Owning the Centre of the Earth” (2008) 55 UCLA L Rev 979.

<sup>155</sup> Baker, above 146.

<sup>156</sup> Barton, above n 145.

<sup>157</sup> McGettigan, above n 142.

<sup>158</sup> Greg Severinsen “Towards an Effective Legal Framework for the Geo-sequestration of Carbon Dioxide in New Zealand” (2010) 16 Cant LR 331.

reservoir. The RMA 1991 is not concerned with ownership but rather use<sup>159</sup> while it seems that under the CMA 1991<sup>160</sup> neither the Crown<sup>161</sup> nor a mining permit holder<sup>162</sup> have rights to the reservoir beyond rights of mineral ownership. In this context, a reservoir is hard to define as a mineral.<sup>163</sup> This leaves two alternatives: the landowner as owner of the fee simple title above the reservoir or that there is no ownership after all. In New Zealand, the Land Transfer Act 1952 defines “land” as including “waters, watercourses... plantations, gardens, mines, minerals, and quarries... unless specially excepted.”<sup>164</sup> An application of the maxim of *cujus est solum, ejus est usque ad coelum et ad inferos* (the landowner owns up to the heavens and down to the centre of the earth) is clearly present. In the United Kingdom, *Bocardo v Star Energy UK Onshore Ltd* held that trespass existed where petroleum wells were drilled at depths greater than 800 feet below the complainants land.<sup>165</sup> While nothing had been done to reduce the strata to actual possession, as “the paper title carries.... title to the strata below the surface, [the landowner] must be deemed to [possess] the subsurface strata too.”<sup>166</sup> It accepted that an absolute application of the maxim “is plainly no longer tenable [as the earth] is not flat.”<sup>167</sup> It can be added that exercising such rights of possession are difficult requiring resource consents<sup>168</sup> and any conferral of ownership traditionally requires compensation if the crown assumes ownership of the property. Severinsen, consistent with other authorities, concludes that “property right[s] not expressly conveyed should be treated as retained.”<sup>169</sup>

## B Ownership of Injected Gas

The second question is who owns the greenhouse gas once injected.<sup>170</sup> There is simplicity in the argument that once captured a greenhouse gas becomes owned, if it is injected into reservoir and thereby becomes part of the land as liquid in a sponge, the landowner must prevent any torts to adjoining landowners from arising. If the liquefied gas

<sup>159</sup> RMA 1991, s 122.

<sup>160</sup> CMA 1991, s 92.

<sup>161</sup> CMA 1991, s 2, definition of “crown owned mineral” and “mineral”.

<sup>162</sup> CMA 1991, ss 25 and 2, definition of “mining”.

<sup>163</sup> McGettigan, above n 142, at 25-26.

<sup>164</sup> Land Transfer Act 1952, s 2, definition of “land”.

<sup>165</sup> *Bocardo SA v Star Energy UK Onshore Ltd* (2010) 3 All ER 975 (SC); See Barry Barton “To the Centre of the Earth?” [2010] NZLJ 345.

<sup>166</sup> At [31].

<sup>167</sup> At [19].

<sup>168</sup> Sprankling, above n 154, at 1023.

<sup>169</sup> Severinsen, above n 158, at 351; See also: *Waugh v Attorney-General* [2006] 2 NZLR 812 (HC); *Roberts v Rodney District Council* [2001] 2 NZLR 402 (HC).

<sup>170</sup> David Adelman and Ian Duncan “The Limits of Liability in Promoting Safe Geologic Sequestration of CO<sub>2</sub>” (2011) 22 (1) DELPF 1; Dougherty, above n 141; Peter Glaser and others “Global Warming Solutions: Regulatory Challenges and Common Law Liabilities Associated with the Geologic Sequestration of Carbon Dioxide” (2008) 6 (2) Geo J L & Pub Pol’y 429; Nathan Hoffman “The Feasibility of Applying Strict-Liability Principles to Carbon Capture and Storage” (2010) 49 (2) Washburn L J 527; Allan Ingelson, Anne Kleffner and Norma Nielson “Long-Term Liability for Carbon Capture and Storage in Depleted North American Oil and Gas Reservoirs – A Comparative Analysis” (2010) 31(2) Energy L J 431; Alexandra Klass and Elizabeth Wilson “Climate Change and Carbon Sequestration: Assessing a Liability Regime for Long-Term Storage of Carbon Dioxide” (2008) 58 (1) Emory L J 103; Sumit Som “Creating Safe and Effective Carbon Sequestration” (2008) 17 (1) NYU Env’tl L J 961.

undergoes a chemical transformation in the reservoir, which can occur when carbon dioxide is injected into a saline aquifer, attachment to the land will be cemented by its degree of annexation.<sup>171</sup> If the gas leaves the reservoir given its tendency to rise, it becomes unattached but emanating from the land. If the liquefied gas is designed to be incapable of escaping, such permanence logically indicates attachment to land as the object of annexation.<sup>172</sup> In this sense, the term disposal rather than storage encapsulates the core of the process.<sup>173</sup> This conclusion is important because land ownership has a degree of permanence whereas a company which injects greenhouse gases will lack permanence. Thus, it is difficult to share Severinsen's confidence that it will be "an extreme case"<sup>174</sup> if the Crown assumes liability when an injector "ceases to exist"<sup>175</sup> because an injector company would be well advised to dissolve in order to disclaim liability and insolvency will also form a real obstacle to liability. Severinsen takes the opposing view that carbon dioxide once injected should not become part of the land because the landowner and injector have different interests.<sup>176</sup> His different interests framework does not answer the actual question of annexation. If the landowner is found to have possession of the substrata sufficient for ownership, it follows that the landowner would also have management and control of the nuisance (including chattels) emanating from the particular land.<sup>177</sup> Ascribing ownership to the landowner may be "fundamentally unjust" but the common law provides certainty not equity.<sup>178</sup> This means any landowner must assign liability from greenhouses gases escape to the injector who has undertaken such activities.<sup>179</sup>

### C *Injection: The Resource Management Act 1991*

The question logically arises as to how New Zealand has dealt with reinjection activities in the past. The reinjection of geothermal water, for instance, is only regulated by the RMA 1991. The injection of natural gas to mineral reservoirs<sup>180</sup> and the flooding of mineral reservoirs with water,<sup>181</sup> by contrast, have been part of mining permit conditions under the CMA 1991 as well as the RMA 1991. Although geothermal water and carbon dioxide are relatively inert, carbon dioxide is not the only greenhouse gas of concern. A starting point will be that all activities are regulated by the RMA 1991. Greenhouse gases (excluding methane because it is a mineral)<sup>182</sup> are natural and physical resources which must

<sup>171</sup> *Auckland City Council v Ports of Auckland* [2000] 3 NZLR 614 (CA) at [72].

<sup>172</sup> At [72].

<sup>173</sup> Barton, above 145, at 8.

<sup>174</sup> Severinsen, above 158, at 367.

<sup>175</sup> At 367.

<sup>176</sup> At 346.

<sup>177</sup> *Hall v Beckenham Corporation* [1949] 1 KB 716 at 723-724; See also: *Black v Christchurch Finance Company Ltd* (1893) NZPCC 448 (PC); *Wintrup v Mitchell* [1895] 15 NZLR 232 (SC).

<sup>178</sup> Severinsen, above 158, at 346.

<sup>179</sup> At 356.

<sup>180</sup> *Todd Pohokura Ltd v Shell Exploration NZ Ltd* HC Wellington CIV-2006-485-1600 13 July 2010 at [425]

<sup>181</sup> *Greymouth Petroleum Acquisition Company Ltd v Petroleum Resources Ltd* HC Auckland CIV-2003-404-6984 22 December 2003 at [23].

<sup>182</sup> CMA 1991, s 2, definition of "mineral".

be sustainably managed.<sup>183</sup> However, as seen, regional councils must not have regard to the effects of discharges of greenhouse gases on climate change except with regards to renewable energy.<sup>184</sup> Injecting a greenhouse gas into land is a contaminant discharge<sup>185</sup> but as regional councils are unable to consider its effect on climate change, the regional council will be limited to consider the effects of the activity on the immediate vicinity. In considering such an application, regional councils have inadequate geological expertise and such matters would inevitably require referral to the EPA.<sup>186</sup> Any applicant would of course have difficulties prospecting, exploring, or testing under the RMA 1991.<sup>187</sup> The greatest drawback is poor provisions in the RMA 1991 for long-term liability including monitoring.

#### *D Injection: The Crown Minerals Act 1991*

In terms of the applicability of the CMA 1991, Barton and McGettigan both take issue with the verb “to mine” which is defined as meaning to “take”, “win”, “extract”, “obtain” and that no verb is used such as to deposit, inject, store, dispose or sequester.<sup>188</sup> The definition of petroleum is the most relevant with reference to hydrocarbons (which can include carbon dioxide) and which may be “returned to a natural reservoir for storage purposes.”<sup>189</sup> This definition explicitly requires that such petroleum is “naturally occurring”; that such petroleum “has been mined”; that the petroleum is returned to a reservoir in “the same or an adjacent area”; and that there is a hydrocarbon “and” carbon dioxide.<sup>190</sup> Hence, methane storage unlike other greenhouse gases poses no problem due to the CMA 1991.

The CMA 1991, nonetheless, should not be dismissed out of hand.<sup>191</sup> Although a standalone piece of legislation would be preferable,<sup>192</sup> the CMA 1991 provides comprehensive provisions relating to prospecting, exploration, access to land, notation on land titles and work programmes. The CMA 1991 provisions of competitive tender allocation in mineral programmes are superior to the RMA 1991’s first-in-first-served rule of resource allocation. Most importantly, CCS will often take place next to oil or gas operations.<sup>193</sup> Petroleum extraction provides space for CCS activities and carbon dioxide injection can aid petroleum recovery.<sup>194</sup> A solution, “unit development” of CCS and mining activities could

<sup>183</sup> Severinsen, above 158, at 337; See generally: Sara Bergan and Alexandra Klass “Carbon Sequestration and Sustainability” (2008) 44 (1) Tulsa L Rev 237.

<sup>184</sup> RMA 1991, s 70A.

<sup>185</sup> RMA 1991, s 15.

<sup>186</sup> Baker, above n 146, at 44; McGettigan, above n 142, at 60; Severinsen, above n 158, at 361.

<sup>187</sup> Barton, above 145, at 9; McGettigan, above n 142, at 26.

<sup>188</sup> At 6.

<sup>189</sup> CMA 1991, s 2, definition of “petroleum”.

<sup>190</sup> CMA 1991, s 2, definition of “petroleum”; Barton, above n 145, at 8.

<sup>191</sup> Severinsen, above n 158, at 368.

<sup>192</sup> Ministry of Economic Development “Reviewing the Crown Minerals Act 1991: Discussion Paper” (August 2010) <www.med.govt.nz> at 11.

<sup>193</sup> Barton, above n 145, at 23; Martin Edwards “Interactions between Petroleum Operations and Carbon Capture and Storage Operations in Australian Offshore Waters” (2009) 26(2) EPLJ 152.

<sup>194</sup> Severinsen, above n 158, at 358.

resolve resource allocation qualms although a competitive tendering allocation could mean one activity displaces another.<sup>195</sup> Such “unit development” may also be appropriate for more than one CCS injector. Permit holders under the CMA 1991 fiercely guard rights conferred and a lack of harmonisation with the CMA 1991 will be detrimental to CCS development. It is noteworthy that critics of CCS label the enhancement of greenhouse gases from such fossil fuel recovery as leakage. How the resource is allocated between a CCS injector and a water extractor who both desire access to a saline aquifer is anyone’s guess with a fight between the RMA 1991 and the CMA 1991. It is suggested that from a policy perspective that competitive tendering is desirable despite the RMA 1991’s preference for a first-in-first-served basis of resource allocation.<sup>196</sup> There are, nonetheless, deficiencies in the CMA 1991 which go beyond minerals. Barton states that in New Zealand there are insufficient duties to plug and abandon wells beyond curt reporting requirements.<sup>197</sup> It is a “serious mistake” that orphan wells, which are unplugged and abandoned, release greenhouse gases in New Zealand.<sup>198</sup>

### *E Uncertainty*

All New Zealand commentators agree that the current legal framework is “awkward, uncertain and wholly inappropriate in regulating [carbon dioxide] storage.”<sup>199</sup> Greenhouse gas storage has coherent legislative frameworks in United States,<sup>200</sup> Canada,<sup>201</sup> United Kingdom,<sup>202</sup> and Australia.<sup>203</sup> In New Zealand under s 168(1)(n) of the CCRA 2002 as amended in 2008<sup>204</sup> the Governor General may by Order in Council make regulations prescribing criteria for registering participants who undertake an “other removal

<sup>195</sup> At 358; CMA 1991, s 46.

<sup>196</sup> McGettigan, above n 142, at 56.

<sup>197</sup> Barton, above n 145, at 28.

<sup>198</sup> At 28.

<sup>199</sup> McGettigan, above n 142, at 62; Baker, above n 146, at 43; Barton, above n 145, at 35; Severinsen, above n 158, at 369.

<sup>200</sup> United States Environmental Protection Agency “Federal Requirements under the Underground Injection Control (UIC) Program for Carbon Dioxide (CO<sub>2</sub>) Geologic Sequestration (GS) Wells” (2008) 73 Federal Register 43520; Act Regulating Carbon Sequestration 2009 Mont Code Ann § 82-11-183; Act Relating to Carbon Sequestration 2008 Wyo Stat Ann § 35-11-313; An Act Relating to the Ownership and Use of Carbon Dioxide Captured by a Clean Coal Project 2011 Tex Nat Res Code Ann §119.001; Carbon Capture and Sequestration Act 2009 Okla Stat, title 27A § 3-5-101; Carbon Dioxide Reduction Act 2007 Kansas Stat Ann §55-1636; Carbon Dioxide Sequestration 2009 W Va Code §22-11A-1; Carbon Dioxide Underground Storage 2011 ND Cent Code § 47-31-03; Clean Coal Futuregen for Illinois Act 2011 20 ILCS §1108; Geologic Sequestration of Carbon Dioxide Act 2009 11 Louisiana RS § 30:1101; Geologic Sequestration of Carbon Dioxide Act 2011 Mississippi Code Ann § 53-11-1.

<sup>201</sup> Carbon Capture and Storage Funding Act SA 2009 c C-2.5; Carbon Capture and Storage Statutes Amendment Act SA 2010 c 14; Crown Minerals Act SS 1984-85-86 c C-50.2; Oil and Gas Conservation Act RSS 1978 c O-2; Petroleum and Natural Gas Act RSBC 1996 c 361.

<sup>202</sup> Energy Act 2008 (UK); Energy Act 2010 (UK); Energy Act 2011 (UK); Directive 2009/31/EC on the Geological Storage of Carbon Dioxide [2009] OJ L 140/114.

<sup>203</sup> Offshore Petroleum and Greenhouse Gas Storage Act 2006 (Cth); Barrow Island Act 2003 (WA); Greenhouse Gas Geological Sequestration Act 2008 (Vic); Greenhouse Gas Storage Act 2009 (Qld); Offshore Petroleum and Greenhouse Gas Storage Act 2010 (Vic); Petroleum and Geothermal Energy Act 2000 (SA).

<sup>204</sup> Climate Change Response (Emissions Trading) Amendment Act 2008, ss 50-52.



mechanism.”<sup>205</sup> A voluntary participant can gain emissions units for the “storing of carbon dioxide after capture” where “the result [is] a reduction from emissions reported in New Zealand’s annual inventory report under the [UNFCCC].”<sup>206</sup> Exact prescriptive details have yet to be finalised. These details will be no doubt developed in tandem with the need for legislative clarification of carbon capture and storage activities.

#### *F Transportation*

The law relating to the compression and transportation of carbon dioxide is convoluted. Severinsen states that the Hazardous Substances and New Organisms Act 1996 does not make carbon dioxide a hazardous substance,<sup>207</sup> yet McGettigan points out that compressed gases can have controls placed on them by road and rail<sup>208</sup> under the Hazardous Substances (Compressed Gases) Regulations 2004 and the Hazardous Substances (Tank Wagons and Transportable Containers) Regulations 2004.<sup>209</sup> If transported by ship the Maritime Transport Act 1994 applies. Such statutes, however, do not cover pipelines which on land are governed by the Gas Act 1992 (although carbon dioxide is not currently defined as a gas)<sup>210</sup> and the Health and Safety in Employment (Pipeline) Regulations 1999. Pipelines at sea are governed by the Submarine Cables and Pipelines Protection Act 1996. Although the principal focus here has been on the applicability of the RMA 1991 to CCS activities, as McGettigan clarifies, the RMA 1991 does not apply to activities offshore more than 12 nautical miles.<sup>211</sup> This means the Maui gas field, New Zealand’s largest geological storage reservoir, is governed by different statutes<sup>212</sup> which are currently under reconsideration to allow the environmental effects of marine activities to be considered by the EPA.<sup>213</sup>

#### *G Long-term Liability and Monitoring*

In New Zealand once injection has taken place long-term liability and monitoring of contaminated land is not legally complex because without any contaminated land regime all liability can fall on the landowner and, in a landowner’s absence, the Crown.<sup>214</sup> Any monitoring is imaginary. This is highly unsatisfactory as the injector can just walk away from liability once land becomes contaminated. At the extremes either the injector is made fully liable for all liability under the polluter pays principle or the Crown ought to assume full

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<sup>205</sup> CCRA 2002, sch 4, pt 2; International Energy Agency “Carbon Capture and Storage: Legal and Regulatory Review” (1<sup>st</sup> ed, 2010) <www.iea.org> at 29.

<sup>206</sup> CCRA 2002, sch 4, pt 2, subpt 2.

<sup>207</sup> Severinsen, above n 158, at 338.

<sup>208</sup> Hazardous Substances and New Organisms Act 1996, s 140(5).

<sup>209</sup> McGettigan, above n 142, at 18.

<sup>210</sup> Barton, above n 145, at 34.

<sup>211</sup> McGettigan, above n 142, at 60.

<sup>212</sup> CMA 1991; Continental Shelf Act 1964; Territorial Sea, Contiguous Zone, and Exclusive Economic Zone Act 1977.

<sup>213</sup> Exclusive Economic Zone and Continental Shelf (Environmental Effects) Bill 2011, s 39.

<sup>214</sup> Simon Schofield “Waste Management Law in New Zealand” (2010) 14 NZJEL 223 at 257-258.

liability.<sup>215</sup> Between these two extremes, commentators have suggested a variety of solutions. Bonds could be imposed under the RMA 1991 but as McGettigan explains there is difficulty quantifying the cost of remediation and even if quantification was possible the cost of obtaining a discharge permit could be prohibitive.<sup>216</sup> Another solution would be for the injector to have to reapply for resource consents every 35 years to keep the gas down the reservoir but such an analysis stretches the statutory language for consent duration and is inconsistent with the conclusion above that liability shifts to the landowner.<sup>217</sup> There could also be mandatory private insurance with a liability cap but this is disadvantageous due to a lack of risk analysis and a temporal limit.<sup>218</sup> An industry funded and publicly administered trust fund is the solution advocated by McGettigan.<sup>219</sup> Severinsen takes a more nuanced approach that “maintenance and monitoring costs rest initially with the injector, but are eventually transferred to the state.”<sup>220</sup> Severinsen’s approach is appealing because there is a public interest in reducing greenhouse gas emissions and McGettigan’s solution will effectively penalise a fledgling industry.

## *VI Conclusion*

New Zealand became one of the first countries in the world to introduce sequestration activities into an emissions trading scheme. Nonetheless, such a globally unique approach has detractors. While permanence, leakage, additionality, measurement, and verification problems have seen pragmatic solutions in forestry, such solutions are left wanting for other forms of sequestration. The legal system for New Zealand forestry is divided. Non-legislative initiatives which augment carbon sequestration are fragmented. When consideration is given to biofuels and soil sequestration, New Zealand lags behind the disaggregation legal initiatives of traditional common law jurisdictions. The addition of geosequestration to the mix shows how far New Zealand has to travel. Simple questions such as the legal mechanisms for capture, transportation, injection and storage of greenhouse gases such as carbon dioxide are uncertain. All New Zealand commentators agree that the current state of the law is unsatisfactory. It is argued here that the current law is also inequitable. The legislature seriously needs to attend to such rights.

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<sup>215</sup> Barton, above n 145, at 30-31.

<sup>216</sup> McGettigan, above n 142, at 40-41.

<sup>217</sup> Resource Management Act, s 123.

<sup>218</sup> McGettigan, above n 142, at 57.

<sup>219</sup> At 58.

<sup>220</sup> Severinsen, above n 158, at 364.

## Chapter 9

### Conclusion

Emissions of greenhouse gases from anthropogenic sources risk aggravating rather than mitigating anthropogenic climate change. The effects of climate change including increases in extreme weather events exacerbating water troubles, rising sea levels, melting permafrost, acidification of the oceans, coral bleaching, the spread of tropical diseases and species extinction speak for themselves. As humans emit greenhouse gases from everyday activities such as through the use of fossil fuels, the change to a society which embraces renewable energy will be challenging. The objective of this thesis, to critically analyse how New Zealand law mitigates greenhouse gas emissions, has shown the numerous difficulties of arresting greenhouse gas emissions. When the New Zealand legal approach is compared with the United Kingdom, Australia, Canada and the United States, there is considerable work to be done. Whether legislative reform or reinterpretation by the judiciary is warranted, this thesis adheres to the need to reduce greenhouse gas emissions through all levels of society including the need to evaluate the nature of property in natural resources.

The first chapter introduces how the common law could be used to reduce greenhouse gas emissions as a legal mechanism against the infliction of harm on others. The law of torts has causes of action in private nuisance, public nuisance, negligence and product liability which could all potentially be used to the prevention of harm. However, the complex causative link between greenhouse gas emissions and climate change has proved too attenuated for redress. The application of the common law to climate change in the United States has rejected injunctions as a remedy and therefore damages for actual harm is unlikely to be favoured. This thesis argues, nonetheless, that a functional climate change tort could be developed. This is because there is an unreasonable interference with public rights. The floodgates will be held by the need to consider the reasonableness of the defendant's conduct and foreseeability of harm. The reason that such a tort is doubtful is because the legislature seems better placed to remedy such harm as torts are said to not be owed to the whole world.

Environmental planning is a logical way of reducing greenhouse emissions but unlike other common law jurisdictions, as chapter two examines, direct discharges of greenhouse gas emissions in New Zealand are not subject to environmental planning regulation. In New Zealand indirect greenhouse gas emissions are ostensibly not caught by the exclusion of direct greenhouse gases from consideration. For mining, the majority of its greenhouse gases are not produced during the process of mining activity but rather with the combustion of minerals. Therefore mining could be subjected to environmental land use regulation. The current system of outdated existing mining privileges does not even use the RMA 1991 at all. Although current permits involve the application of the RMA 1991 and in theory sustainable

management of the atmosphere from land use planning is arguable, the better view seems to be that the legislature has deliberately usurped such regulation. The potential for urban planning including the expansion of airports has the potential to reduce greenhouse gases through high density development and the discouragement of inefficient travel. The creativity of local government to achieve such goals should be encouraged.

The third chapter explores how the international emissions trading and the NZETS in the Climate Change Response Act 2002 will reduce greenhouse gas emissions. This involved a theoretical and practical approach to explain what type of property an emissions unit is and how such emissions units will work. Emissions trading by putting a price on emissions units will reduce greenhouse gas emissions with a cap or baseline on such emissions. The setting of that cap for certain industries remains a controversial political question but despite political changes the emissions unit itself has been retained. This chapter argues that the legal nature of the emissions unit means that it can never create a right to emit but only allow its holder to emit and an emissions unit cannot be owned but only held. Although an emissions unit is personal property rather than an interest in land and can be considered to be a financial instrument, the conceptualisation of the emissions unit as a service as the avoidance of greenhouse gas emissions is the best. An emissions unit takes place on an internet platform in a holding account, to be transferred and subsequently surrendered to meet the necessary statutory obligations. Furthermore, the difficulties arising when an emissions unit is subject to fraud, security, disclosure, insolvency were examined.

Chapter four analyses how emissions trading is leading businesses to drive reductions in greenhouse gases. The low carbon world with the greater risk created by high carbon portfolios has been embraced by shareholders, creditors, insurance agents and employees alike. Investors have funded businesses which avoid strict regulation, fortify customer loyalty, employ clever employees and augment business connections. The disclosure of greenhouse gas emissions and the reporting of financial risks are driving the market to such reductions. Directors' duties under the Companies Act 1993 including the duty of care, skill, and diligence as well as the duty to act in the best interests of the company in relation to climate change require a degree of consideration. These duties are expensive to enforce but shareholders through resolutions have remained conscious of these responsibilities. Any reductions in greenhouse gases must be real and the propagation of greenwash with misleading and deceptive advertising is growing. An informed market with accurate information will, nonetheless, create opportunities out of risks for businesses.

Renewable energy is the focus of chapter five with an examination of the legal impediments to the development of hydro, geothermal, wind and marine resources for electricity production. Renewable energy, of course, reduces greenhouse gas emissions, enables security of supply, allows diversification and mitigates transmission losses. From a

history of development, this thesis submitted that the ownership of these fugacious resources in accordance with *res communes* means that no one owns the resources but that instead everyone is entitled to use the resource with usufruct rights. It was argued that conflicts over the resources which adhere to “first-in-first-served” resource allocation may not be promoting sustainable resource management. These conflicts mean that renewable resources are not inexhaustible because suitable sites for development are being filled. As the adverse environmental effects of hydro, geothermal, wind and marine resources were considered, it was seen that there are many challenges to the development of renewable energy in New Zealand. For Maori, development can infringe on cultural and metaphysical wellbeing. It is concluded a more considered framework to sustainability could better resolve these conflicts.

Chapter six explores the need to use energy produced from renewable resources efficiently and subsequently conserved to reduce adverse environmental effects. The Energy Efficiency and Conservation Authority is the government’s tool to entrench these goals through voluntary initiatives and financial incentives. Aimed at breaking down market barriers to drive energy efficiency and conservation which has been created from the disaggregation of rights, change is occurring in industry, businesses, transmission and distribution. The home has joined the efficient trend with energy efficient smart meters, appliances, insulation, heating, hot water systems and even lightbulbs. The use of solar energy for hot water and electricity is increasing despite there being no feed-in tariff laws in New Zealand. For transportation, fuel economy labelling for vehicles rather than emissions standards is another example of consumer choice rather than regulation guiding energy efficiency and conservation. The tying of market incentives to tightening regulation is a partnership that needs further exploration.

Mitigating climate change through sequestration is analysed in the seventh chapter. This involves the process of capturing, storing, and thereby avoiding greenhouse gases. This can be achieved through biosequestration and geosequestration. It was seen that biosequestration can be in the form of solids (biomass), liquid (biofuels), and gas (biogas). There is also the potential for biomass to be stored in the soil such as biochar. Geosequestration can also achieve storage of greenhouse gases in a geological reservoir. The real risks of sequestration are permanence, leakage, additionality, measurement and verification which have led to critics. New Zealand forestry that has entered into the NZETS has found solutions to these difficulties. However, the legislature has created a mass of confusing property law rights which fail to further delineate a right to carbon sequestration through disaggregation. This is especially so for emissions units which are outside the terms of the NZETS. As geosequestration is analysed, it becomes apparent that the capture, transportation, injection, storage, and monitoring required for such activities is left wanting an appropriate legal framework exacerbating uncertainty and potential unfairness.

This thesis is also about a changing world where ownership of energy sources like fossil fuels are being replaced with fugacious renewable resources which are incapable of ownership until capture. Such a no ownership ideal calls for stewardship principles using sustainability to be applied to property for the benefit of present and future generations. As conflicts over renewable resources take place, sustainability requires cooperation between parties. Attempting to reconcile the seemingly irreconcilable will be demanding. Nonetheless, the unabated use of the atmosphere will result in detriment to all under the theory of the tragedy of the commons. It must be remembered, therefore, that the complementary theory of the tragedy of the anti-commons should be invoked to negotiate the disaggregation of rights in seeking solutions to mitigate climate change. Those well worn principles of environmental law - sustainable development in international law or sustainable management under the RMA 1991, intragenerational equity, the precautionary principle, the polluter pays principle, and intergenerational equity - need to be integrated into all other areas of law for solutions to mitigate climate change to be both supported and advanced.

The challenge of climate change is testing traditional legal boundaries. At the same time as all levels of society from corporations to consumers mitigate climate change by reducing greenhouse gas emissions, the law is digesting the fact that present economic wellbeing is not the only aspect to sustainability. It follows that ensuring equity between present and future generations necessitates a continuing sustainable focus on greenhouse gas reductions. While the law of torts, environmental planning law, emissions trading, business practices, the development of renewable energy, energy efficiency, energy conservation and sequestration can all be used to reduce greenhouse gas emissions, in the end New Zealand law must help rather than hinder these societal, political and economic changes. The New Zealand legislature and the judiciary have much work to do to mitigate climate change.

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## *XI Speeches*

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Judge Newhook “Climate Change and the RMA” (paper presented to the Annual Resource Management Law Association of New Zealand Conference, 26 September 2008)

Shannon Page, Ian Mason and Arthur Williamson “Carbon Capture and Storage: An Appropriate Technology for New Zealand?” (paper presented to the Sustainability Society Conference, Auckland New Zealand, 12 December 2008)

Jacinta Ruru “Maori Legal Rights to Water: Ownership, Management or Just Consultation?” (paper presented to the Annual Resource Management Law Association of New Zealand Conference, 1 October 2010)